

**KEPPEL OPP'N EXH. 101**

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(AS ADVISORS ON BEHALF OF)**

**SETE INTERNATIONAL  
(FOR THE LONG TERM FINANCING OF THE DRU PROJECT)**

**SETE BRASIL DRILLSHIP PROJECTS**

**TECHNICAL DUE DILIGENCE REVIEW**

**Report No: L-26369**

**Rev 2**

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## CONTENTS

| SECTION   | PAGE      |
|---|-----------|
| <b>1 INTRODUCTION</b>                           | <b>7</b>  |
| <b>2 EXECUTIVE SUMMARY</b>                      | <b>10</b> |
| 2.1 GENERAL                                     | 10        |
| 2.2 VESSELS                                     | 10        |
| 2.3 PROJECT PARTIES & ORGANIZATION              | 11        |
| 2.4 CONTRACTS & CHARTER                         | 14        |
| 2.5 OFE / BFE PROCUREMENT                       | 15        |
| 2.6 PLANNING / SCHEDULING                       | 16        |
| 2.7 PROJECT CONTROL                             | 16        |
| 2.8 DESIGN / ENGINEERING                        | 18        |
| 2.9 CONSTRUCTION                                | 18        |
| 2.10 COMMISSIONING / ACCEPTANCE                 | 19        |
| 2.11 INSURANCES                                 | 20        |
| 2.12 ENVIRONMENTAL                              | 20        |
| 2.13 CAPEX / OPEX                               | 21        |
| 2.14 MODEL ASSUMPTIONS                          | 21        |
| 2.15 RECOMMENDATIONS                            | 22        |
| <b>3 VESSEL DESCRIPTIONS</b>                    | <b>23</b> |
| 3.1 OPERATIONAL AREA                            | 23        |
| 3.2 UNIT DESCRIPTIONS / CHARTER REQUIREMENT     | 23        |
| <b>4 KEY PROJECT PARTIES &amp; ORGANISATION</b> | <b>26</b> |
| 4.1 SPONSOR                                     | 26        |
| 4.2 SHIPYARDS                                   | 27        |
| 4.3 OPERATORS                                   | 40        |
| 4.4 CHARTERER                                   | 45        |
| 4.5 CLASS / FLAG                                | 46        |
| <b>5 CONTRACTS / CHARTER</b>                    | <b>47</b> |
| 5.1 GENERAL                                     | 47        |
| 5.2 CONTRACTS                                   | 48        |
| 5.3 CHARTER / SERVICES AGREEMENT                | 53        |
| <b>6 BASIC DESIGN</b>                           | <b>66</b> |
| 6.1 SETE  | 66        |
| 6.2 ESTALEIRO ATLÂNTICO SUL                     | 66        |
| 6.3 BRASFELS                                    | 67        |
| 6.4 JURONG BRASIL                               | 68        |
| 6.5 ESTALEIRO RIO GRANDE                        | 68        |
| 6.6 ESTALEIRO ENSEADA PARAGUAÇU                 | 68        |



|           |                                      |            |
|-----------|--------------------------------------|------------|
| <b>7</b>  | <b>CONSTRUCTION YARDS</b>            | <b>70</b>  |
| 7.1       | GENERAL                              | 70         |
| 7.2       | SETE                                 | 70         |
| 7.3       | ESTALEIRO ATLÂNTICO SUL              | 71         |
| 7.4       | BRASFELS                             | 72         |
| 7.5       | JURONG BRAZIL                        | 72         |
| 7.6       | ESTALEIRO RIO GRANDE SHIPYARD        | 73         |
| 7.7       | ESTALEIRO ENSEADA PARAGUAÇU          | 73         |
| <b>8</b>  | <b>OFE / BFE PROCUREMENT</b>         | <b>74</b>  |
| 8.1       | GENERAL                              | 74         |
| 8.2       | SETE                                 | 74         |
| 8.3       | DRILLING EQUIPMENT SUPPLIERS         | 75         |
| 8.4       | DP SYSTEM SUPPLIERS                  | 76         |
| 8.5       | SPARE GEAR                           | 78         |
| 8.6       | COMMONALITY                          | 78         |
| 8.7       | OFE                                  | 78         |
| <b>9</b>  | <b>PLANNING / SCHEDULE</b>           | <b>80</b>  |
| 9.1       | SETE                                 | 80         |
| 9.2       | ESTALEIRO ATLÂNTICO SUL              | 81         |
| 9.3       | BRASFELS                             | 84         |
| 9.4       | JURONG BRAZIL                        | 85         |
| 9.5       | ESTALEIRO RIO GRANDE SHIPYARD        | 89         |
| 9.6       | ESTALEIRO ENSEADA PARAGUAÇU          | 90         |
| <b>10</b> | <b>PROJECT CONTROL</b>               | <b>91</b>  |
| 10.1      | GENERAL                              | 91         |
| 10.2      | SETE                                 | 93         |
| 10.3      | ESTALEIRO ATLÂNTICO SUL              | 97         |
| 10.4      | BRASFELS                             | 99         |
| 10.5      | JURONG BRAZIL                        | 99         |
| 10.6      | ESTALEIRO RIO GRANDE SHIPYARD        | 100        |
| 10.7      | ESTALEIRO ENSEADA PARAGUAÇU          | 102        |
| <b>11</b> | <b>DETAILED DESIGN / ENGINEERING</b> | <b>103</b> |
| 11.1      | GENERAL                              | 103        |
| 11.2      | ESTALEIRO ATLÂNTICO SUL              | 103        |
| 11.3      | BRASFELS                             | 104        |
| 11.4      | JURONG BRAZIL                        | 104        |
| 11.5      | ESTALEIRO RIO GRANDE SHIPYARD        | 105        |
| 11.6      | ESTALEIRO ENSEADA PARAGUAÇU          | 105        |
| <b>12</b> | <b>CONSTRUCTION</b>                  | <b>106</b> |
| 12.1      | GENERAL                              | 106        |
| 12.2      | SETE                                 | 107        |



|                   |  |            |
|-------------------|--|------------|
| 12.3              | ESTALEIRO ATLÂNTICO SUL                            | 107        |
| 12.4              | BRASFELS   | 110        |
| 12.5              | JURONG BRAZIL                                      | 111        |
| 12.6              | ESTALEIRO RIO GRANDE SHIPYARD                      | 115        |
| 12.7              | ESTALEIRO ENSEADA PARAGUAÇU                        | 121        |
| <b>13</b>         | <b>COMMISSIONING / ACCEPTANCE</b>                  | <b>122</b> |
| 13.1              | ESTALEIRO ATLÂNTICO SUL                            | 122        |
| 13.2              | BRASFELS   | 122        |
| 13.3              | JURONG BRAZIL                                      | 122        |
| 13.4              | ESTALEIRO RIO GRANDE SHIPYARD                      | 123        |
| 13.5              | ESTALEIRO ENSEADA PARAGUAÇU                        | 123        |
| <b>14</b>         | <b>INSURANCES</b>                                  | <b>124</b> |
| 14.1              | CONSTRUCTION                                       | 124        |
| 14.2              | OPERATIONS   | 125        |
| <b>15</b>         | <b>ENVIRONMENT</b>                                 | <b>126</b> |
| 15.1              | CONSTRUCTION                                       | 126        |
| 15.2              | CHARTER  | 126        |
| <b>16</b>         | <b>CAPEX / OPERATIONS &amp; MAINTENANCE</b>        | <b>128</b> |
| 16.1              | SETE   | 128        |
| 16.2              | OPERATORS  | 133        |
| <b>17</b>         | <b>MODEL ASSUMPTIONS</b>                           | <b>137</b> |
| 17.1              | GENERAL  | 137        |
| 17.2              | SETE   | 138        |
| 17.3              | UTILISATION  | 139        |
| 17.4              | OPERATING COST                                     | 139        |
| 17.5              | CAPEX  | 140        |
| 17.6              | DELIVERY / MOBILISATION                            | 140        |
| 17.7              | CHARTER RATE                                       | 141        |
| 17.8              | SENSITIVITIES                                      | 141        |
| <b>APPENDIX A</b> | <b>LIST OF DOCUMENTS REVIEWED</b>                  | <b>1</b>   |
| <b>APPENDIX B</b> | <b>GLOSSARY OF ABBREVIATIONS</b>                   | <b>2</b>   |
| <b>APPENDIX C</b> | <b>IDENTIFIED RISKS &amp; MITIGANTS</b>            | <b>5</b>   |
| <b>APPENDIX D</b> | <b>PROJECT CONTROL DOCUMENTATION / REPORTING</b>   | <b>12</b>  |
| <b>APPENDIX E</b> | <b>MONTHLY DRU REPORT CONTENTS</b>                 | <b>14</b>  |
| <b>APPENDIX F</b> | <b>SAMPLE PROJECT EXECUTION PLAN INDEX</b>         | <b>17</b>  |
| <b>APPENDIX G</b> | <b>MSC GUSTO REFERENCE LISTS</b>                   | <b>19</b>  |
| <b>APPENDIX H</b> | <b>SETE VESSEL SUMMARY LIST</b>                    | <b>22</b>  |
| <b>APPENDIX I</b> | <b>PETROBRAS CHARTER&amp;EPC ANNUAL ADJUSTMENT</b> | <b>26</b>  |
| <b>APPENDIX J</b> | <b>SEADRILL FLEET SUMMARY</b>                      | <b>30</b>  |
| <b>APPENDIX K</b> | <b>ODEBRECHT FLEET SUMMARY</b>                     | <b>32</b>  |

**GL Noble Denton**



**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

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|                   |   |           |
|-------------------|---|-----------|
| <b>APPENDIX L</b> | <b>ODFJELL / QGOG FLEET SUMMARY</b>     | <b>34</b> |
| <b>APPENDIX M</b> | <b>PETROSERV FLEET SUMMARY</b>          | <b>37</b> |
| <b>APPENDIX N</b> | <b>WORLD DRILLSHIP / SEMI FLEET</b>     | <b>39</b> |
| <b>APPENDIX O</b> | <b>KOREAN SHIPYARD DRILLING VESSELS</b> | <b>44</b> |

**1 INTRODUCTION**

This report was commissioned by DNB (acting as an agent) for senior syndicated lenders to the project in accordance with the GLND's proposal reference RQN-1183-127-161-D Rev C dated 11 of January, 2013.

Sete Brasil ("Sete") has entered into shipbuilding contracts with five shipyards in Brazil for the building of 29 drilling units ("DRUs") (a combination of mono hulled Drillships and Semi-submersibles) to be operated under long-term charter agreements with Petrobras in the pre-salt fields of offshore Brazil. It has also been advised that Petrobras' engineering department is providing engineering approval services in relation to all of the DRUs. The breakdown of each individual shipyard's project is as follows;

|                                     |  |
|-------------------------------------|--|
| Estaleiro Atlântico Sul ("EAS")     | Seven units (minor yard extension required for warehouse and drilling system erection)   |
| Keppel FELS Brasil ("KF")           | Six units (semi-submersibles, all units will be partially constructed in Singapore)  |
| Jurong Brazil ("EJA")               | Seven units (Greenfield site, one unit commenced in Jurong Singapore, another will commence May 2013)  |
| Estaleiro Rio Grande 2 ("ERG")      | Three units (extensive yard works required in way of structures, workshop, assembly area, load out, and outfitting quay. This yard is sometimes referred to as Ecovix) |
| Estaleiro Enseada Paraguaçu ("EEP") | Six units (Greenfield site, one unit commenced in Kawasaki, Japan)   |

In some cases the shipyards involved will be Greenfield development, currently under construction themselves. All shipyards have a foreign partner giving technical expertise transfer. It has been reported that in order to maintain the delivery schedules that two units have started construction outside of Brazil in the partner parent company yards in Singapore and Japan.

Operators of the DRUs have been identified to date as;

|              |                     |
|--------------|---------------------|
| Seadrill     | 3 units             |
| Odebrecht    | 5 units (one semi)  |
| Odyssey      | 3 units             |
| Etasco / OAS | 5 units             |
| QGOG         | 3 units (all semis) |



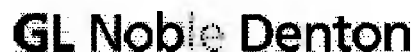


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**Petroserv                      2 units (all semis)**

The remaining units are currently identified as for Petrobras operations but there is a list of pre-qualified operators that they will choose from at a later date.

This report is a result of visits to Brazil on the 8<sup>th</sup> through the 21<sup>st</sup> of December 2012 and Singapore / Philippines on the 5<sup>th</sup> through the 12<sup>th</sup> of January 2013 and review of associated documentation.



**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

|                   | Estaleiro Atlântico Sul | Estaleiro Brasfels                                 | Estaleiro ERG2        | Estaleiro Jurong-Aracruz               | Estaleiro Enseada do Paraguaçu      |
|-------------------|-------------------------|--|-----------------------|--|-------------------------------------|
| Yard status       | Existing Shipyard       | Existing Shipyard                                  | Expanding             | Under construction                     | Under construction                  |
| Location          | Suape, PE               | Angra dos Reis, RJ                                 | Rio Grande, RS        | Aracruz, ES                            | Paraguaçu, BA                       |
| Size              | 1.620.000m <sup>2</sup> | 600.000m <sup>2</sup>                              | 300.000m <sup>2</sup> | 870.000m <sup>2</sup>                  | 1.600.000m <sup>2</sup>             |
| Capacity          | Steel Capacity          | Steel Capacity                                     | Steel Capacity        | Steel Capacity                         | Steel Capacity                      |
| Technical partner | IHI                     | Keppel Fels  | Cosco                 | SembCorp                               | Kawasaki                            |
| Order             | 7 Drillships            | 6 Semi-sub   | 3 Drillship           | 7 Drillships                           | 6 Drillships                        |
| Design            | LMG Marin               | Keppel   | Gusto                 | LMG/Espadron                           | Gusto                               |
| Drilling package  | NOV                     | NOV  | NOV                   | Aker                                   | NOV                                 |
| Operators         | Petrobras               | Queiroz Galvão<br>Petroserv<br>Odebrecht Oil & Gas | Etesco (OAS)          | Odfjell<br>Drilling/Galvão<br>Seadrill | Odebrecht Oil & Gas<br>Etesco (OAS) |



## **2 EXECUTIVE SUMMARY**

### **2.1 GENERAL**

The construction phase of the project is at an early stage. The basic design is complete and signed off by the owner and class. The detailed design is ongoing and construction has commenced in only three of the five yards. Current average progress is below 3% overall with all projects on schedule (including the civil works which are not directly controlled by Sete under the contracting arrangements in place).

The project control arrangements whilst complex, due to the nature of the parties involved and the size of the overall project, are considered well thought out and prepared. Monthly formal reporting requirements are comprehensive and should give adequate information to control progress and quality going forward.

Scheduled payment terms should give tight control and incentive for progress. The mono hulled vessels are re-numerated on an agreed progress payment calculation (with progressive title transfer) whereas the semi-submersibles are re-numerated on a more standard milestone payment regime.

Planning schedules show an extended period for completion of the DRUs compared to similar industry projects and in most cases there is a further extended period before they are required to start work on charter. In the majority of cases therefore there should be sufficient slack in the projects to allow for charters to commence as required and without delay. The schedules do however need to be developed into integrated Level 4 schedules as the detailed engineering and procurement is completed.

Key risks and mitigations have initially been identified and there are procedures for live risk monitoring and control going forward.

Project technical communications use a tried and tested Petrobras system.

Contracting arrangements are comprehensive and should give a high degree of control and reporting going forward.

Shipyard personnel training and qualification requirements have been recognized and a formal training program is in place in conjunction with Petrobras and the Brazilian government. Currently, this seems to be operating satisfactorily although there is a reportedly high attrition rate at the more senior levels (i.e. basic workers are at present not coming through to supervisor and above levels in high numbers).

### **2.2 VESSELS**

DRUs are a mixture of mono hulled drillships or semi-submersibles, the latter coming from Keppel BrasFELS only. All are of proven design with an industry track record in operation. The vessels are not of the highest harsh deepwater specification and have not been winterized or ice classed therefore they would not be able to operate in some areas of Canada, Northern Norway or Russia.

The specifications being used are those compiled by the designers and as such leave some details to the interpretation of the yards concerned. This is somewhat mitigated by the various specifications and directives included in the Engineering, Procurement and Construction ("EPC") contracts.

In all cases, the drilling and DP system specifications are from the suppliers rather than the DRU designers (this is a typical arrangement).

There is a general requirement for proven equipment, no prototype equipment to be used throughout.

## **2.3 PROJECT PARTIES & ORGANIZATION**

### **Sete**

The company has been set up by Petrobras head office to act as an expeditor for the procurement of these DRUs. They have engaged the services of Petrobras Engineering and the various Operators (both under the CMA and co-operation agreements) to initially control the design and construction with the operators taking over the final operations and maintenance of the DRUs in service. Sete in turn has engaged Petrobras Engineering (under the CMA agreement) to cover the design approval and construction monitoring (in conjunction with Operators' personnel). The DRUs will ultimately charter with Petrobras E&P. In all, three Petrobras entities are involved at some point in the project.

Overall management is via a Construction Management Agreement ("CMA") between the parties involved. There are also co-operation and consortia agreements in support.

***It should be stressed that whilst the report variously treats Sete in terms of ownership of the rigs they only act as expeditors / advisors throughout.***

### **Estaleiro Atlântico de Sul**

Following a visit to the shipyard EAS, this yard is currently considered the shipyard with the highest associated risk. The yard itself is modern (having been designed by Samsung, a leading Korean shipyard). However, the yard is considered much larger and spread out than required and it is currently not being operated as designed. This is leading to poor productivity throughout the building process.

The current yard management has employed Japan Marine United, Corporation ("JMU"), a leading Japanese shipyard consulting group, to provide technical support. This is through a four year contract and currently there are 28 IHI Marine United Inc. ("IHI") technical personnel on site. Obviously, they will not have finished their contract before construction commences which constitutes a risk to the early DRUs.

Note that JMU was formerly known as IHI whilst JMU has been formed in a merger with the shipbuilding divisions of some of the other leading Japanese shipyards (Hitachi, Sumitomo and NKK).

Whilst JMU is currently only providing consultancy services it has announced that they will take a significant equity stake in the yard (however no formal agreement has been signed to date).

Following this involvement a revised Global Execution Plan has been agreed with Petrobras, Sete and the yard.

### **BrasFELS**

KF conversely is considered the yard with the least associated risk. Whilst it is an older yard with older equipment productivity and quality is good. Probably the

main risk here is the pressure from other concurrent projects due to its obvious popularity with owners.

Keppel FELS are managing the construction of the vessels locally from Singapore as follows;

- pontoons and column sections from Singapore using yards in Indonesia (upper hull columns) and Philippines (outfitted and mechanically completed pontoons and lower hull column). These yards are both part of the Keppel Group.
- Drill floor and living quarters in Singapore apart from DRU 5 & 6 where drill floor will be fabricated in Brazil.
- DRU 6 will be 60% constructed in Brazil. Pontoon will be supplied as outfitted blocks but not mechanically completed.
- The remaining of the DRUs completion will be in Brazil.

The Singapore and Philippines yards mentioned above have been used by Keppel on previous occasions for similar work.

Keppel will gather all parts in Singapore for dry transport to Brazil for completion by BrasFELS.

Transportation throughout will be done by dry tows (i.e. piggy backed on another vessel).

#### **Jurong Brazil**

EJA is a Greenfield site yard being developed by Jurong. To date the yard has not been visited as ground breaking is the only current activity. Jurong has recently just completed a similar project at its own facility in Singapore where the old yard is being transferred to a new purpose built facility. Therefore, they have recent experience of the tasks and problems involved and we do not envisage major difficulties at this stage.

We consider that eventually this yard could be on par or better than KF when completed as both Jurong and KF have similar productivity and quality delivery.

Jurong Singapore will complete two hull units (up to main deck level) in Singapore using two subcontractor yards in Indonesia for basic lower hull blocks prior to wet tows to Brazil for completion. One of the yards is part of the SemCorp Group, the other is independent.

#### **Estaleiro Rio Grande 2**

The ERG (sometimes known as Ecovix) facility currently consists of an original facility ERG1, currently carrying out FPSO work, but is expanding to cover the drillship work with a parallel ERG2 facility currently under construction. These facilities are designed for block production capacity sufficient for the concurrent FPSO and DRU construction program. Blocks for the FPSOs will commence in March 2013 whilst the blocks for the first DRU will commence in December 2013.

Quality and productivity of the existing facility appeared good and it is expected this will carry over to the new facility. Both the management and workforce were clearly engaged throughout the various meetings and presentations given.

The main concern here is their ability to complete the civil works by March 2013 when steel cutting on the FPSO is due to commence. In order to overcome this

potential problem the first blocks (forebody) will be constructed at the COSCO facility in China (with Petrobras approval).

There is also an issue with airborne sand and dust due to the unmade roadways in the yard. This can have a detrimental effect if not properly controlled (particularly in relation to coating work, even though they have dedicated coating cells). It is recommended that all main roadways are asphalted to cure this risk.

ERG is using COSCO, a major Chinese shipyard group, as their technical partner but only on a consultancy basis (i.e. COSCO has no equity stake in the shipyard) but this is not seen as a major issue. There are current negotiations taking place as to whether some initial blocks will be fabricated in China in order to maintain schedules.

#### **Estaleiro Enseada Paraguaçu**

EEP is the second Greenfield site and again has not been visited to date.

The yard is being developed by Kawasaki Heavy Industries ("KHI"), a major Japanese shipyard group, and will be a state of the art facility when completed. Our initial concern at this stage based on our visit to EAS is can the Japanese construction methodology be satisfactorily transferred into a new Brazilian facility. The whole production method is based on 98% block outfitting with a 'just in time' delivery of parts. The difference here is that KHI is an active equity partner in the shipyard (IHI are only a consultant at EAS, although it is understood there are talks regarding IHI taking a very minor equity stake).

The main concern here is that the first DRU has an overall period to requirement on charter of 48 months which is considered tight given that this is a green field site. It is understood the first vessel will commence construction in KHI Japan as mitigation but this construction is not scheduled to commence until June 2013. Note that the other yards that have similar durations have already started construction or will start in March 2013.

A further mitigation for construction at KHI in Japan is that a large part of the initial design can be handled locally and a group of Brazilian EEP technicians and engineers will be trained at the same time. Following this, a group of KHI technicians will follow the hull to Brazil to continue the training efforts the local EEP workforce.

Facilities close to EEP at São Roque currently building P-59 and P-60 jack-up drilling rigs for Petrobras will be used for megablock construction of the DRUs (post jack-up delivery).

#### **Operators**

The proposed operators (Etesco, Odebrecht, Petroserv, QGOG, Odfjell / Galvao & Seadrill) are generally experienced and in particular have worked or are working in Brazil. The main risk for all will be access to experienced and trained crews for this number of DRUs. There is however a long lead time for them to mitigate this risk but progress will require monitoring going forward.

It is reported that all of the operators will be part equity owners of the rigs they will operate. Additionally they will provide engineering and construction assistance to Sete throughout. This is in addition to Petrobras Engineering who are giving engineering support to Sete and confirming that the various specifications meet the Petrobras E&P charter requirements.



All are experienced to a varying extent and all have operated for Petrobras in Brazil.

All operators will be minor equity partners in the DRUs themselves (up to 30%).

Currently only six DRUs at EAS are without a formal operator whilst discussions with Sete continue. However the shortlisted operators are all well-known and experienced and capability should not be a major issue going forward.

As the project develops monitoring of operators in relation the crew procurement and training will be an issue given the number of DRUs involved and the associated crewing numbers required.

#### **Drilling Equipment Suppliers**

National Oilwell Varco ("NOV") are the main drilling equipment supplier with Aker Solutions (new owners of Maritime Hydraulics) supplying the system for the EJA DRUs.

These are by far the main two suppliers for all the rigs worldwide and can be considered industry standards. The main concern with these suppliers is their workload but Sete (through Petrobras Engineering and the CMA) will have a permanent presence in the Norwegian fabrication facilities to ensure work is not diverted to other concurrent projects. The advantage for Sete is that they will be considered a major customer by both parties to will be able to apply suitable pressure when necessary.

Aker Solutions is also in the process of opening a major facility in Brazil to service the local market and increase its local content compliance.

#### **DP System Suppliers**

The majority of systems will be supplied by Converteam, a company of the General Electric Group) with only two yards contracting with Kongsberg (Jurong and BrasFELS). Both suppliers are known reputable suppliers of DP systems with proven systems in operation. Looking specifically at DRUs Kongsberg has by far the largest track record of any supplier globally but is generally expected to be a more expensive solution compared to Converteam. One important situation for DP systems is to ensure that during trials and commissioning that the eventual setup on board is recorded centrally as a backup. There have been problems in the past with backup systems being outdated and the actual system set up is on the commissioning engineer's laptop.

## **2.4 CONTRACTS & CHARTER**

### **Contracts**

All DRUs will be constructed under an EPC contract at essentially a fixed price and the contracts themselves include full responsibility from design through to commissioning and delivery (with the expected guarantee periods attached). Note that these contracts do not specifically cover the civil works involved in either yard construction or extension but Sete are monitoring the situation.

Control of the construction management will be via a CMA between the parties involved as joint company teams will be used. Company participation is covered by two agreements (in Portuguese) for tender co-operation and consortium participation. These agreements confirm the equity percentages involved and the associated share dividends.



O&M / Asset Management Agreements are currently under discussion with the operators and no formal agreements are in place.

#### **Charters / Service Agreements**

It is understood that all DRUs will operate under the standard Petrobras charter and service agreement requirements.

All of the operators selected should be well aware of the requirements of these documents due to previous experience.

Charters and associated services agreements are for periods well in excess of the usual third party charters of 3 - 5 years. Charter periods are for 10 - 20 years including extension options.

Rate adjustment factors use the standard Petrobras adjustment formula (adjustment can be up or down depending upon market factors at the charter / services agreement renewal / extension date). The renewal or extension date is taken as the end of the initial charter period with the adjustment coming at either 10 or 15 years from acceptance on charter. This is much better than the 3 to 5 years typical of other DRUs operating for Petrobras.

## **2.5 OFE / BFE PROCUREMENT**

In all cases Builder Furnished Equipment ("BFE") is the selected route. This greatly reduces risk during engineering, construction commissioning and the guarantee period. For this route there is a single point contact for Sete throughout (i.e. the shipyard concerned). They are therefore responsible for interface and communication issues, commissioning (pre commissioning in this case as the drilling system can only be fully commissioned on site but this is the norm for these types of vessels). All equipment will have passed a Factory Acceptance Test ("FAT") prior to issue and will have further passed mechanical completion and basic pre commissioning before delivery acceptance at the shipyard. During the guarantee period Sete has sole redress through the shipyard rather than a tri partite situation if they had supplied the equipment (i.e. is the fault in the equipment or the way it was installed).

There is a requirement for local content involvement for all DRUs ranging from 55 - 65%.

There is a requirement under the EPC contract for only reliable non prototype equipment supplies to be used. The machinery lists forming part of the specifications confirm the expected manufacturers are being proposed and this is certainly the case for the major equipment items. Drilling systems will be supplied by either of the two industry leading suppliers, NOV or Aker Solutions (Maritime Hydraulics), and the DP systems will be supplied by Converteam in the main with only Jurong and BrasFELS selecting Kongsberg. Both are known and experienced suppliers but with Kongsberg having a significant track record of supplying systems specifically to DRUs. Kongsberg is also typically more expensive than Converteam.

The only OFE identified to date is drill piping, risers and other sundry items required for operations. It is understood that this equipment is be provided by the operators and has been included in the CapEx budget.



**2.6 PLANNING / SCHEDULING**

In general construction schedules are not considered onerous and there is the added mitigation in most cases that there is a time lag to the DRUs requirement on charter by Petrobras. The shortest period is 48 months which is considered fairly typical (18-24 months engineering and 24 months construction) and most of the yards affected have started work early or will start soon (ERG March 2013). Our main concern at EEP (which is a green filed site) and it is understood construction will start in KHI Japan starting June 2013.

All schedules presented to date are only to a Level 1 / 2 status and there is no indication that these have integrated schedules from the subcontractors / suppliers involved. As detailed engineering and procurement is completed these should be integrated up to Level 3 / 4 to ensure the full impact of schedules and resource requirement (and critical items) have been adequately identified.

Construction is contracted to take place in five shipyards in Brazil but due to initial delays there has been movement in the program (see the chart in Section 17.8 for an overview).

- Hull No 1 will now deliver from EJA rather than EAS. This DRU will also have a subcontracted element from Indonesia whereby the forward and aft sections will be build there with the Midship section (including the critical moonpool section will be built in Singapore). All three sections will be assembled in Singapore prior to transportation to Brazil for completion (mainly topsides integration).
- Hull No 8 will now deliver from KeppelFELS Singapore (in addition to Hull No 9 bare deck unit). This DRU will also have a subcontracted element from the Philippines and Indonesia. The main issue here is that both pontoons will be built, including full outfitting in the Philippines and we would therefore recommend that Sete has a full time inspection presence in this yard over this period. It should be noted that on a semi-submersible the majority of the marine systems are contained in the pontoons (i.e. gensets, switchboards, thruster motors and control in addition to other sundry services) with only the drilling system being on the topside deck.
- Hull No 14 will now deliver from KHI Japan (starting June 2013).
- Hull No 20 will now deliver from Jurong Singapore (starting May 2013), see above.

**2.7 PROJECT CONTROL**

All projects are currently on schedule but the current maximum progress is 3% (most are in the 1.5% region) so all of the projects are in the early stages.

Sete / Petrobras have an evolved project control system through many previous projects but it is difficult for an outsider to determine how the control system ties together. A typical mitigation for this is to compile a Project Execution Document which pulls together the project organization and control procedures in a single master document (recommended contents are included in the Appendix).

Technical partner project control is generally being adopted and these are all tried and tested but monitoring of the transfer of this project control to the Brazilian shipyard will be required (i.e. what works in Singapore and Japan may not just be

a transplant into Brazil). BrasFELS' and ERGs systems were seen to be working satisfactorily during the initial visit.

The project control procedures are defined and have been used on similar projects with success previously. Ideally we would like to have seen a single Project Execution Plan document outlining the project arrangements and the various control documents to be used throughout. There are directives for all key project controls included as exhibits to the EPC contracts.

Interface control is completely with the relevant shipyard under the EPC agreement and the CMA team will monitor and audit particularly in critical areas.

Currently the CMA has approximately 200 personnel working on the project. This number should further increase when all of the yards are in the construction phase.

Contract variation will be tightly controlled under a formalized three tier arrangement to prevent unnecessary cost escalation and permissible delay. We would recommend that going forward variations should be limited to those relating to safety and operational / charter requirements. Once variations rise above 5% of the contract price project control becomes progressively more difficult leading to both delay and cost escalation as typically variations are occurring later in the project causing duplicate working and associated delay as this affects other tasks.

Risk matrices and registers will be set up by the CMA as a whole and each shipyard will have their own discreet risk register. Again these will be monitored and audited throughout by the CMA.

The project will use the standard Petrobras document control and register system (used on many projects before) to ensure that all parties have live access to the latest information.

Class will have dedicated surveyors at all construction sites and major suppliers (typically the drilling system).

Currently Sete has teams in the following locations where engineering and / or construction is taking place.

- Rio de Janeiro (main site)
- Atlântico de Sul (two persons)
- BrasFELS (fifteen persons)
- Keppel FELS (six persons). These personnel also cover the Indonesia and Philippine yards. There is one person permanently stationed in the Philippines.
- Jurong Singapore (six persons from Petrobras, five from the operator Odfjell-Galvão and four from operator SeaDrill) which also covers the Indonesian yards.

Note that the Indonesian yards are approximately one hour from Singapore and can easily be attended by the teams in Singapore (the personnel have confirmed that they attend for formal and patrol type inspections).

As all the DRUs are designated as DP3 should the International Marine Contractors Association recommendations be adhered to this will require third party assessment (i.e. not the manufacturer, class or the shipyard can do this

work only a fully independent third party). Note this recommendation relates only to DP3 rated vessels.

All personnel met with to date are experienced in this type of project and more than capable of covering their designated responsibilities. To date no operators' personnel have been nominated or met with.

## **2.8 DESIGN / ENGINEERING**

All of the various designs chosen have a proven track record and there are no prototypes / custom builds. This greatly reduces the risk going forward both in engineering, construction and operation.

The basic design packages are all Class (ABS) approved and the main focus at the moment is detailed design engineering (construction engineering) which is being supported by the basic design houses.

Detailed design in all cases is being carried out in the Far East at the partner yards. Some partners have further engaged reliable design support from Europe. Note that whilst the Jurong Espadon design was originally based on the LMG design they now have full ownership of this design and the LMG design is now completely separate. Key discreet studies have been programmed once the designs have developed far enough (HAZOP, Dynamic Positioning and Failure Mode Effect Analysis ("FMEA")) for their respective projects.

Apart from the usual design freeze points at completion of basic and detailed design in this case where there are multiple operators in a given design set it will be important to adopt a similar operators' freeze so that all DRUs are common and do not have major operator driven differences.

All the DRU basic designs are for the vessel elements only and drilling system and DP systems are designed and specified by the manufacturers concerned (this is typical). Note that under the terms of the EPC contracts the yards concerned remain responsible for the design as a whole.

Sete is currently going through a specification compliance exercise and formal sign off of the various detailed specifications evolving from the detailed engineering.

## **2.9 CONSTRUCTION**

All the shipyards contracted are using technical support / transfer from either China (COSCO), Japan (IHI & KHI) or Singapore (Jurong & KeppelFELS) and this support is from highly regarded shipyards although these two Japanese yards have not specifically built drilling vessels before this project. This should not cause a major risk as there is a high level of input from drilling package suppliers throughout. However the outfitting and commissioning stages, for all vessels, is always a critical stage.

All shipyards are proposing to complete the construction by blocks and are estimating outfitting at the block stage of between 60 - 95%. The higher the outfitting completion at block stage generally will increase productivity (by easier access) and quality. In order to achieve this, the majority of engineering must have been completed and the relevant drawings identified as Approved for Construction ("AFC") status. This therefore includes cabling, piping and equipment (there is no indication from the yards that have started construction and the steelwork sighted that this, at present, is not happening).

The only shipyard carrying a question mark regarding overall performance at the moment is Estaleiro Atlântico de Sul, primarily due to poor past performance. A new senior management team has been put in place, recognizing this, and they have engaged, since August 2012, the services of IHI (now Japan Marine United Corp) to supply specialist process and productivity advice (28 personnel will be in the yard for up to 4 years).

A full revision of the construction schedule of the yard's current order book (tankers and DRUs) has been made and approved by Petrobras and adopted under the terms of the 'Global Execution Plan (GEP)' and to date the yard is on schedule and is due to cut steel in March 2013.

Both Keppel and Jurong have commenced construction of their initial vessels from their Singaporean yards and both are subcontracting basic steel blocks (lower hull tankage units with minimal outfitting) in yards in Indonesia. These yards are well known and both yards have a regular arrangement for this type of work. In addition Keppel is using its sister yard Keppel Batangas in the Philippines to construct the pontoons which will be fully outfitted including mechanical completion and commissioning where this is possible.

Jurong will eventually wet tow these hulls to Brazil for completion whereas Keppel will dry tow (carry on another vessel) the pontoons and column sections to Brazil for assembly and completion.

We have a concern over the first unit from EEP with a 48 month schedule to charter. This is considered tight when this is a green field site and construction is reported not due to start at KHI in Japan until June 2013. EEP will use the time in Japan to train its personnel and then KHI personnel will follow the vessel to Brazil for ongoing training.

## **2.10 COMMISSIONING / ACCEPTANCE**

A BFE equipment solution has been adopted in all cases the commissioning risk to Sete is significantly reduced and is under the total control and responsibility of the shipyard. Costs may therefore be fixed and the risk related to delay, partially mitigated by liquidated damages.

The additional bonus of BFE is there is a single point of redress (the yard) in relation to guarantee defects which is not the case if an OFE option is used where there is tripartite redress.

The main area for the yards to consider during this phase relates to the thrusters which typically are fitted outside of the yard and due to draft restriction the DRU cannot return. This has been raised and this is the case in some yards but others (particularly the new yards have taken this into consideration and will have a deep enough outfitting quay and a deep hole to allow the initial fitting.

The main controlling document covering this aspect is an exhibit directive in the EPC contracts.

Additionally, it should be noted that in addition to Owner acceptance the DRUs will all go through a pre-charter acceptance audit by Petrobras but given the Petrobras involvement throughout this is not considered a risk in this case.

**2.11 INSURANCES**

The expected insurances are already in place for construction exposure. It is recommended that H&M and P&I insurances are in place prior to the operations crews being put on site.

Builders All Risks (or Construction All Risks) insurances should ideally be in joint names on the policy (maximum possible allowance in general is the value of the vessel plus 10%).

There is a suitable insurance directive exhibit in each EPC contract requiring the following;

**Contractors**

- Workmens' compensation
- Life Assurance
- Personal Accident
- Employer's Liability
- Automobile
- Machinery & Equipment

**Marine Resources**

- Hull & Machinery
- Protection & Indemnity
- Transport & Installation

**Corporate**

- Third Party

**Owners**

- Offshore Construction Project (Welcar 2001)

**2.12 ENVIRONMENTAL**

The DRUs themselves will be delivered compliant with all industry environmental regulations in place and should not therefore constitute a major environmental risk in day to day operations.

Yards ERG and BrasFELS have the expected ISO environmental standard auditing system in place. Estaleiro Atlântico de Sul and the two new yards do not have the ISO certifications.

A full Equator Principle assessment can be carried out as requested and has been priced in CTR 3 of our proposal.

There is an environmental directive included as an exhibit to the EPC contracts together with a requirement to provide copies of all consents and licenses.

Currently the green field or extended yards are generally in the process of gaining the various environmental licenses involved.

**2.13 CAPEX / OPEX**

In comparison to global new-build process (particularly the Far East shipyards), the construction cost is higher USD 662-823m compared to USD 620-680m, depending upon the initial contracting date. This highlights a cost premium for the Brazilian build and equipment requirement. The low figure is for the vessels at EAS and we feel there could be pressure from this yard to increase cost going forward (as compared to the cost of the experienced Korean yards) we feel a figure nearer the USD 800m mark would be more towards the norm to include for the learning curve cost (23% premium over established far eastern yards). All the other yards are high USD 700's to 823m.

Total construction periods also take into account a learning experience factor and are much longer than the industry norm from more experienced yards for most DRUs. Additionally, in some cases there is also an extended period between the contracted delivery date and the date identified by Petrobras for the DRUs commencement on charter (we have periods ranging from 48 to 98 months) a typical period would be 18-24 months design plus 24 months construction (42-48 months in total. Note that the three 48 month durations relate to the initial vessel currently under construction in the Far East (2 x Jurong, 1 x KeppelfELS) the exception is the first Ecovix (Rio Grande 2) DRU which is also 48 months which is considered tight for a Brazilian yard.

We have seen only proposed OpEx figures from the operators but current daily rates for the region are in the USD \$150k+ per day (excluding docking costs which are usually incurred at the end on the basis of a 5 year charter). In this case it is understood the charters will be 15 years so two docking costs will have to be included in any OpEx figures. These may be able to be offset by an 'In Water Survey in Lieu' by Class but a lower cost is still involved (in this case 4-5 inspections will be required nominally every 2 ½ years or 36 monthly intervals as a maximum). The charter agreements available for review all allow for Docking Grace Periods for 6 days per year at the Awaiting Fee rate.

Present OpEx indications given at operator assessment (November 2011) show comparable values in the USD \$177k to \$192k range (including docking allowances).

Daily operating income is contracted to the order of USD \$518k to \$540k per day, compared to current published industry rates for the region of USD \$414k to \$457k per day.

**2.14 MODEL ASSUMPTIONS**

Model assumptions and sensitivities have been provided but there is significant project stretch in most cases and the delivery date to Petrobras requirement date negates the requirement for additional contingencies.

Sete, through the CMA, has instigated a tight contract variation control strategy from the start (essentially going straight to executive level) as the aim is not to allow contract variations due to construction.

The main cause for concern at this stage related to OpEx assumptions are mainly due to escalation assumptions and the operators' ability to attract suitably experienced and qualified operations staff in what will be a very competitive market.





The construction schedules are generally very stretched and should not cause difficulty (almost twice as long as a Far East yard in most cases) and in many cases there is a significant 'float' between scheduled delivery of the DRUs and their requirement by Petrobras.

## **2.15 RECOMMENDATIONS**

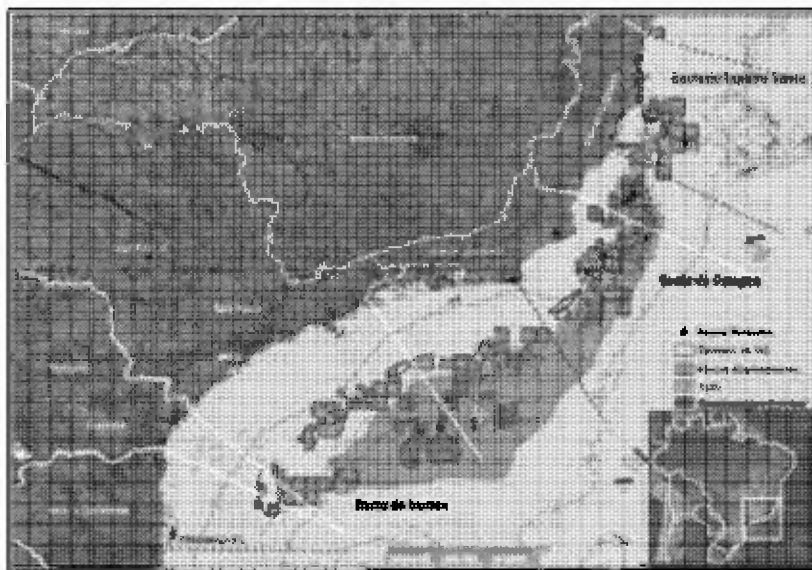
The following recommendations for Sete / the CMA are advised for the immediate future to mitigate initial risks and help in the information likely to be required by other third parties coming into the project.

- Some additional areas where we feel we need to have more detailed information:
  - CMA should produce a Project Execution Plan for distribution to shipyards and third parties
  - Shipyards should confirm Level 4 integrated schedule (including input from contractors and suppliers)
  - CMA is monitoring civil works outside of the contracted works access to reporting required
  - All yards should be encouraged to obtain ISO accreditations
- The following are recommendations for further due diligence work:
  - External Review of Monthly Progress reports (shipyards and CMA) should commence, including civil works.
  - More detailed analysis of quality and safety procedures and control (CMA and shipyards should be completed)
  - Confirmation from CMA of detailed reviews and results should be given (specification sign off, HAZID, HAZOP, FMECA, etc.)

### **3 VESSEL DESCRIPTIONS**

#### **3.1 OPERATIONAL AREA**

The prime operational area for the DRUs is Brazil's offshore pre-salt field development (Santos, Campos & Espirito Santo Basins) but essentially they will be suitable for general global work (without significant modification).



#### **3.2 UNIT DESCRIPTIONS / CHARTER REQUIREMENT**

##### **3.2.1 General**

The basic technical description of the DRUs (the semi-submersibles will be termed 6<sup>th</sup> Generation units) is as follows;

- 28 Drilling Units (minimum)
- "Field proven" projects
- Water depth: 3.000 meters
- Drill Pipe: 10.000 meters
- Dynamic Positioning System (DP): IMO Class 3
- Derrick: allows simultaneous operations of pipe assembly and drilling
- Maximum work pressure: 15.000 psi
- Living Quarters: 180 people
- Self-propelled with a minimum speed of 11 knots for the Drillships and 7.5 knots for Semi-submersibles



**3.2.2 6th Generation Semi-submersibles**

There is no definitive definition to the term and it is generally considered by the industry to be an indication of water depth capability. Typically this is considered to be;

- Capable of operating in water depths up to 3,000m (cf. 1,000m for 5<sup>th</sup> generation) in harsh environments
- Full DP capability
- Capable of drilling to depths of 10,000m (cf. 10,000m for 5<sup>th</sup> generation)
- Have a high variable deck load of between 6,000m - 7,000m tonnes (cf. 4,500m - 5,000m tonnes for 5<sup>th</sup> generation)
- Have a large deck area of around 6,000m<sup>2</sup> (cf. 5,700m<sup>2</sup> for 5<sup>th</sup> generation)

**3.2.3 Class Requirements**

The Class notations contained within the EPC contracts are as follows;

| Suggested Class Notation for Drilling Rig Unit   |  |   |  |
|--|--|---|--|
| Remark: Final Class Notation will result from technical agreement between OWNER, Contractor and Classification Society |  |   |  |
| Items  | ABS  | BV  | DNV  |
| Structure, equipment and marine systems  | +A1  | +HULL Unrestricted Navigation                               | +1 A1  |
| "Ship" or "column stabilized" type   | "Drilling Unit" or "Column Stabilized Drilling Unit" | "Offshore Service Ship" or "Offshore Semi-Submersible Unit" | "Ship Shaped Unit" or "Column Stabilized Unit" |
| Machinery, boilers and systems   | +AMS   | +MACH   | +1 A 1   |
| Centralized Control Station Unattended Machinery Spaces  | +ACCU<br>+ACC  | +AUT-CCS<br>+AUT-UMS  | ECO<br>E0                                      |
| Self-Propelled   | Not Applicable (Default for +AMS DP unit)            | Not Applicable (Default for +MACH DP unit)                  | Not Applicable (Default for +1 A1 DP unit)     |
| Dynamic Positioning System Class 3   | +DPS-3   | DYNAPOS AMAT RS   | DYNAPOS AUTRO                                  |
| Anchor & Mooring Arrangements  | Not Applicable (Default for classed vessels)         | Not Applicable (Default for classed vessels)                | Not Applicable (Default for classed vessels)   |
| Dynamic Loading Conditions   | SH-DLA (for ship)                                    | VeriStar-Hull FLM (for ship)                                | +1 A1  |
| Drilling systems (facilities and utilities)  | +CDS   | Drilling  | DRILL  |
| Cranes   | CRC  | ALM   | CRANE  |
| Helideck   | HELIDK   | HEL   | HELDK  |



The only notations missing from this list relate to 'clean design' and noise / vibration levels but the implications of these are covered elsewhere in the specifications. ABS is the selected Class throughout.

Note also that these are not high end harsh environment DRUs as there is no winterization or Ice Class. They are therefore suitable for global operations within the restrictions of the design envelope (i.e. no Arctic, Canada, Russian fields)

### **3.2.4 Charter Specification Requirement**

The Petrobras standard charter document includes a list of specified technical requirements for a drilling ship or semi-submersible.

The suitability of the DRUs offered are being confirmed against this requirement by both Sete and Petrobras Engineering and are formally closed out as compatible by a specification conformity analysis (sometimes termed a gap analysis).

As Petrobras is engaged on both sides of the assessment, the compliance risk is considered minimal.

Sete is currently going through a formal specification acceptance exercise (gap analysis) with all of the yards to ensure that all specifications are fully compliant.

**4 KEY PROJECT PARTIES & ORGANISATION****4.1 SPONSOR****4.1.1 Sete Brasil**

Petrobras created Sete Brasil as a vehicle for the required vessel procurement necessary to develop its pre-salt fields. The state-owned company holds 10% of the equity interest in Sete with other seven shareholders;

**Petros**

Founded in 1970, the Petrobras employees' retirement fund is the second largest in Brazil in terms of assets under management ("AUM").

**Previ**

Previ was founded in 1904 and it is the largest pension fund in Latin America.

**FUNCEF**

The pension fund of Caixa Econômica Federal employees is the 3rd largest in Brazil.

**Valia**

Valia is the Vale employees' pension fund, founded in 1973.

**Banco Santander**

Subsidiary of Santander in Brazil, it is the fourth largest bank in the country and the largest one controlled by a foreign group.

**Bradesco**

Bradesco is one of Brazil's largest private banks in total assets, and offers a wide range of banking and financial products to individuals, small/medium companies and large corporations.

**BTG Pactual**

BTG Pactual is one of the leading banks of investment, asset and wealth managers in Brazil.

**EIG Partners**

Headquartered in Washington, DC, EIG also has offices in Houston, London, and Sydney, Hong Kong, Seoul, and Rio de Janeiro.

They are energy sector specialists investing across the entire energy value chain from upstream oil & gas, midstream and infrastructure, to power generation, renewables and resources.

**Luce Drilling**

A Brazilian drilling company and investment vehicle of investor Aldo Floris, a traditional investor in the Brazilian infrastructure sector.

**FI-FGTS**

A Brazilian governmental pension fund. From 2008, the fund broadened to direct resources to other segments of the infrastructure, such as construction, renovation, expansion or implementation of infrastructure projects in roads, ports, waterways, railways, power works and sanitation.

The Committed capital breakdown for the shareholders and others is as follows;

| Breakdown of FIP Sondas and Sete Brasil Shareholders (A Shareholders) |                |               |               |
|---|----------------|---------------|---------------|
| Initial Sete Brasil shareholder structure                             |                |               |               |
| Investor  | Amount         | % FIP Sondas  | % Sete Brasil |
| Petrobras   | 350.0          | 19.2%         | 16.2%         |
| Funcel  | 350.0          | 19.2%         | 16.2%         |
| Bradesco  | 250.0          | 13.7%         | 13.0%         |
| BTG Pactual   | 250.0          | 13.7%         | 13.0%         |
| Santander   | 250.0          | 13.7%         | 13.0%         |
| Prvi  | 180.0          | 9.9%          | 8.4%          |
| Vale  | 100.0          | 5.5%          | 5.2%          |
| Lakeshore   | 1.0            | 0.1%          | 0.1%          |
| Petrobras   | 91.1           | 5.0%          | 4.6%          |
| Luca Drilling   | -              | -             | -             |
| EO Partners   | -              | -             | -             |
| FHFGTS  | -              | -             | -             |
| <b>Total FIP Sondas</b>   | <b>1,822.1</b> | <b>100.0%</b> | <b>95.0%</b>  |
| <b>Petrobras</b>  | <b>95.9</b>    | <b>-</b>      | <b>5.0%</b>   |
| <b>Total</b>  | <b>1,918.0</b> | <b>-</b>      | <b>100%</b>   |
| Current Sete Brasil shareholder structure upon FIPGTS capitalization  |                |               |               |
| Investor  | Amount         | % FIP Sondas  | % Sete Brasil |
| Petrobras   | 1,366.3        | 17.5%         | 16.7%         |
| Funcel  | 1,366.3        | 17.5%         | 16.7%         |
| Bradesco  | 250.0          | 3.2%          | 3.0%          |
| BTG Pactual   | 2,167.3        | 27.7%         | 26.3%         |
| Santander   | 500.0          | 6.3%          | 6.0%          |
| Prvi  | 180.0          | 2.3%          | 2.2%          |
| Vale  | 200.0          | 2.5%          | 2.4%          |
| Lakeshore   | 4.0            | 0.1%          | 0.0%          |
| Petrobras   | 380.8          | 4.6%          | 4.3%          |
| Luca Drilling   | 285.0          | 3.6%          | 3.4%          |
| EO Partners   | 500.5          | 6.4%          | 6.1%          |
| FHFGTS  | 650.0          | 8.2%          | 7.8%          |
| <b>Total FIP Sondas</b>   | <b>7,900.6</b> | <b>100%</b>   | <b>95%</b>    |
| <b>Petrobras</b>  | <b>415.8</b>   | <b>-</b>      | <b>5.0%</b>   |
| <b>Total</b>  | <b>8,316.4</b> | <b>-</b>      | <b>100%</b>   |

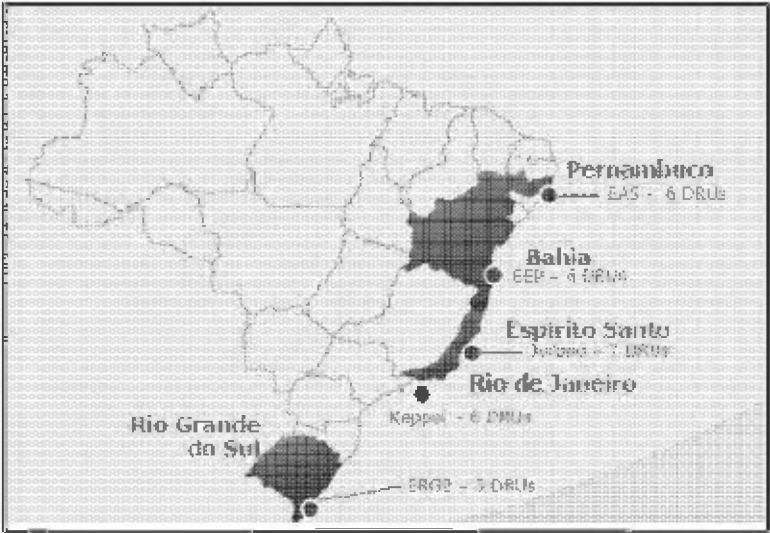
It has also been advised that Petrobras' engineering department is providing engineering approval services in relation to all of the DRUs and operators are assisting with operational input to the engineering process as well as construction site inspection.

At the SPC level for each individual DRU, Sete Brasil (through Sete International) owns from 70% to 85% of each SPC. The operators own the remaining 15% to 30%.

## 4.2 SHIPYARDS

### 4.2.1 General

The DRUs will be built in five shipyards which are spread over 2,000 km of the South East coast of Brazil from Rio Grande in the South to Recife in the North.



|                        |   |
|------------------------|---|
| EAS                    | Seven units   |
| BrasFELS / Keppel FELS | Six units (semi-submersibles, some work in Singapore) |
| EJA                    | Seven units (some work in Singapore)                  |
| ERG                    | Three units   |
| EEP / KHI              | Six units (some work in Japan)                        |



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

## Summary of DRUs, shipyards and operators together with summary of construction for yards outside and inside Brazil



Unit #1 was originally scheduled from EAS but due to delay the back-up unit from Jurong EJA will be the first delivery.





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

| DRU             | #1  | #2  | #3  | #4  | #5  | #6  | #7  | #8 | #9 | #10 | #11 | #12 | #13 | #14 | #15 | #16 | #17 | #18 | #19 | #20 | #21 | #22 | #23 | #24 | #25 | #26 | #27 | #28 | #29 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Yard            | EJA | EAS | EAS | EAS | EAS | EAS | EAS | KF | KF | KF  | KF  | KF  | KF  | EEP | EEP | EEP | EEP | EEP | EEP | EJA | EJA | EJA | EJA | EJA | EJA | EJA | EJA | EJA |     |
| Blocks          | MS  | B   | B   | B   | B   | B   | B   |    |    |     |     |     |     | J   | C   | C   | C   | C   | C   | MS  | B   | B   | B   | B   | B   | B   | B   | B   |     |
| Hull Assembly   | S   | B   | B   | B   | B   | B   | B   |    |    |     |     |     |     | J   | B   | B   | B   | B   | B   | S   | B   | B   | B   | B   | B   | B   | B   | B   |     |
| Lower Hull      | I   | B   | B   | B   | B   | B   | B   |    |    |     |     |     |     | J   | B   | B   | B   | B   | B   | I   | B   | B   | B   | B   | B   | B   | B   | B   |     |
| Living Quarters | B   | B   | B   | B   | B   | B   | B   | B  | B  | B   | B   | B   | B   | B   | B   | B   | B   | B   | B   | B   | S   | S   | S   | S   | S   | B   | B   | B   |     |
| Drillfloor      | B   | B   | B   | B   | B   | B   | B   | B  | B  | B   | B   | B   | B   | B   | B   | B   | B   | B   | B   | B   | S   | S   | S   | S   | S   | B   | B   | B   |     |
| Pontoons        |     |     |     |     |     |     |     | P  | P  | P   | P   | P   | P*  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Columns         |     |     |     |     |     |     |     | I  | I  | I   | I   | I   | I   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

\*Will be provided as outfitted blocks only

#### Table Notations (above)

|   |   |
|---|---|
| B | Brazilian yard  |
| C | Contractor (Brazilian to be confirmed (possibly São Roque)) |
| I | Indonesian yards  |
| P | Philippines yard  |
| J | Japanese yard   |
| S | Singaporean yard  |

**4.2.2 Estaleiro Atlântico Sul (EAS)**

EAS won the bid for the construction of seven drillships for Sete.



EAS has as owners / sponsors the Brazilian groups Camargo Corrêa, Queiroz Galvão, and the company, which is also the technological partner of this undertaking.

EAS is located in the Port and Industrial Complex of Suape, in Ipojuca, a city in the State of Pernambuco, Northeast of Brazil.

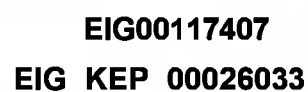
**4.2.2.1 Ishikawajima-Harima Heavy Industries - Marine United (IHIMU)**

IHI is a large Japanese conglomerate, whose business lines include shipbuilding and marine equipment manufacture and formed IHI Marine United in 2012 when it joined with Universal Industries also of Japan. It now operates three shipyards one in Yokohama and two in Kure.

It is primarily a shipbuilder but performed conversion work on the "HAKURYU-5", semi-submersible drilling rig owned by Japan Drilling Co. Ltd, at IHI Aichi Works in 2009. This conversion involved upgrading deck load capacity and hull structural strength of the original unit by installing additional floater structure called "Deep-dish".

Recently IHIMU has changed its name to Japan Marine United Corporation (JMU) after a merger with the shipbuilding divisions of Hitachi, Sumitomo and NKK (see below).







solutions for Brazil's offshore oil and gas sector.

Additionally, Keppel Singmarine Brazil is equipped to undertake the fabrication of offshore modules and can support the execution of major projects at the BrasFELS yard. Keppel Offshore & Marine Ltd (Keppel O&M), through its subsidiary Fernvale Pte. Ltd. has firmed up contracts with Sete Brasil Participações S.A. (Sete Brasil), for the design and construction of five additional semi-submersible (semi) drilling rigs.

#### **4.2.3.1 Keppel FELS Singapore**

Keppel FELS and its network of offshore yards have successfully delivered almost half of the world's new-build jack-up rigs and semi-submersibles in the past decade.

They provide design and engineering solutions spanning drilling semi-submersibles, drilling tenders, accommodation semi-submersibles, drillships and floating production systems.

#### **4.2.3.2 Keppel Batangas**

Keppel Batangas ("KBS") is a major ship care center in the Philippines servicing international and local ship owners. It specializes in the repair, conversion and building of various types of vessels as well as the fabrication of marine and industrial structures.

It is a subsidiary of Keppel Philippines Marine Inc., a member of the Keppel Offshore and Marine Group of Singapore, which has business in ship repair and shipbuilding, rig building, property, engineering, telecommunications, shipping and logistics.

KBS is a 34-hectare site in the emerging growth center of Batangas and is a two-hour drive from Metro Manila.

The yard has 50,000 dwt graving dock measuring 200 meters, by 38 meters with a draft of seven meters, and seven repair and building berths served by mechanical ship lift platform capable of dry-docking of vessels up to 20,000 dwt.

Other key facilities include deep water wharves and comprehensive workshop facilities.

Managed by Keppel Shipyard, KBS has an experienced management team and a 900-strong dedicated workforce whose skills and expertise are continuously upgraded to keep up with technological advancements in the marine industry.

KBS has ventured into the offshore fabrication market in 2006 and has worked on numerous fabrication projects for Keppel FELS.

Recent fabrication work has been successfully completed on the complete lower hulls of the ultra-deepwater semi-submersible oil rig ENSCO 8500 series from 8500 to 8504 of ENSCO International, the pontoon for the semi-submersible drilling platform of Global Santa Fe Corporation, Brazilian drilling contractor Queiroz Galão Óleo e Gás (QGOG), Maersk Drilling and semi-submersible accommodation project for Floatel International.

All offshore fabrication projects have been completed on-time and without any lost time incidents.

**4.2.3.3 Keppel Bintan**

Located in the South of Bintan Island, Indonesia, Bintan Offshore fabricates module blocks for a variety of offshore projects.

A subsidiary of Keppel FELS, Bintan Offshore was established in 2006. Its core capabilities include steel structure fabrication and outfitting work as well as piping work, including fabrication, installation and testing.

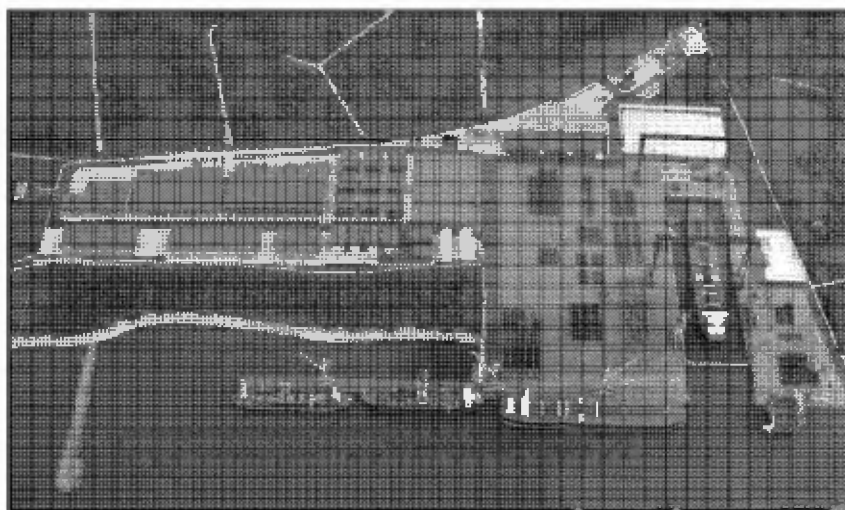
This yard will construct upper column sections for the semi-submersible DRUs.

**4.2.4 Jurong Brazil (EJA)**

Sembcorp Marine Ltd (the parent company of Jurong) will design and construct seven drillships based on Jurong Shipyard's proprietary Jurong Espadon drillship design.

Jurong Shipyard (Singapore) has successfully constructed and delivered several models of deep drilling semi-submersible rigs. Among the two most recent are the Friede & Goldman 6th generation Millennium Class Ex-D design and Moss Maritime CS50 MK II.

This is in addition to Sembcorp Marine's agreement for its wholly owned Brazilian shipyard Estaleiro Jurong Aracruz Ltda to design and construct a drillship with Guarapari Drilling B.V., Netherlands (a subsidiary of Sete Brasil).

**4.2.4.1 Jurong Singapore**

Jurong Singapore is experienced in offshore new building projects and their past projects include the construction of work-over rigs and ultra-deepwater sixth generation dynamic positioning semi-submersible rigs for the offshore oil & gas industry.

**4.2.4.2 PT Karimun**

PT Karimun Sembawang Shipyard, a wholly-owned SembCorp shipyard, operates from a 30.7-hectare site located on the Karimun Island in Indonesia,



which is approximately 40 kilometers southwest of Singapore. Complementing the Group's Singapore operations, the yard's main activities encompass steelworks, steel structure fabrication and construction of multi-purpose barges/vessels for accommodation, work and bulk cargoes. In addition, the yard's activities include tank cleaning, floating ship repairs, grit blasting and painting as well as de-sludging and de-sloping of tankers.

This yard is carrying out lower hull construction of the first two DRUs for EJA.

#### **4.2.4.3 PT Batamec**

PT Batamec shipyard is situated in the northwest area of Batam Island Indonesia, approximately 40 kilometers southwest of Singapore and occupies a land area of 50 hectares which makes it one of the largest single location shipyards in the region. It has a well-organized infrastructure along with comprehensive facilities and advanced equipment which places it among the most efficient shipyards in Indonesia.

Established in 1985 and through a series of upgrading programs, it now holds a dry-dock of 145m x 40m x 7m, a synchrolift covering total area of 26,000m<sup>2</sup>, a combined wharf length of 450m, an automated plate blasting shop, CNC machines along with a series of well-equipped and covered workshops.

This yard will carry out basic steel structure blocks of the first two DRUs for EJA.

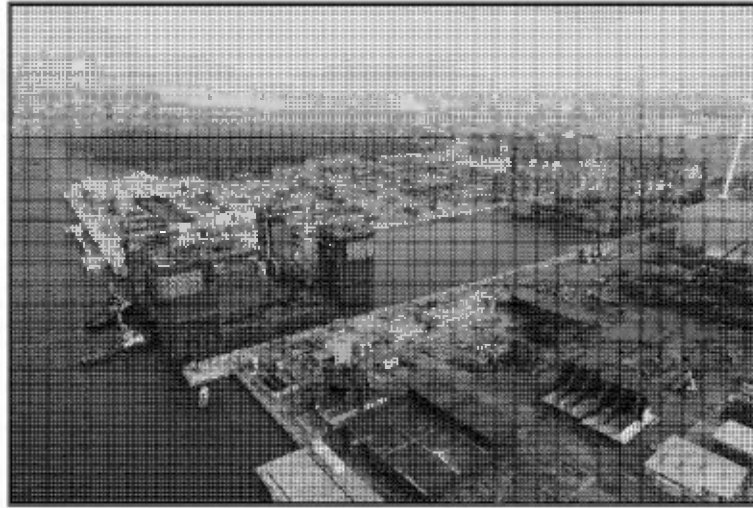
#### **4.2.5 Estaleiro Rio Grande 2 Shipyard (ERG)**

The construction of Brazil's first large dry-dock, the Estaleiro Rio Grande Shipyard, located in the area of the Super port, started in August 2006, Petrobras financed 79% of the shipyard construction and acquired the dry-dock occupation rights for the next 10 years.

Jackson holding of Engevix (a contractor) and Ecovix is the current owner of the yard. Another company within the group is Densinvix which is currently 40% owned by SN Power (Statkraft), after a USD\$ 450 million investment.

The objective of the contract signed with Petrobras intends to increase its investment, aiming for full occupation of the dry-dock. The expansion will allow the construction, conversion and repair of hull ships, platforms, in addition to the construction and repair of semi-submersible platforms.





#### **4.2.5.1 COSCO**

COSCO is a major Chinese shipyard group with seven shipyards in China. The main offshore oriented yards are Dalian and Nantong with experience of construction of drilling units (jack-ups, semi-submersibles and drillships). Its original partner for technology transfer was Sembcorp of Singapore. It currently has a relationship with Kawasaki in some of its smaller yards (see Kawasaki below).

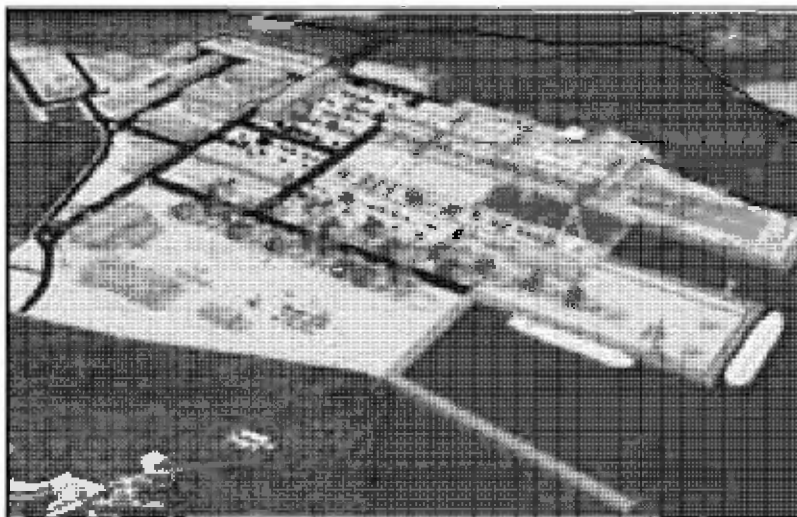
COSCO is supporting ERG in the detailed design, shop drawings, procurement and vendor drawing verification from Shanghai. They are also providing construction knowhow via a dedicated team of in the shipyard who are presently providing the same services for the 8 FPSOs currently and scheduled to be built by the yard.

Currently, there are discussions as to whether certain blocks will be built in China to ensure the schedule can be maintained. It is not known which specific COSCO yard will be involved.

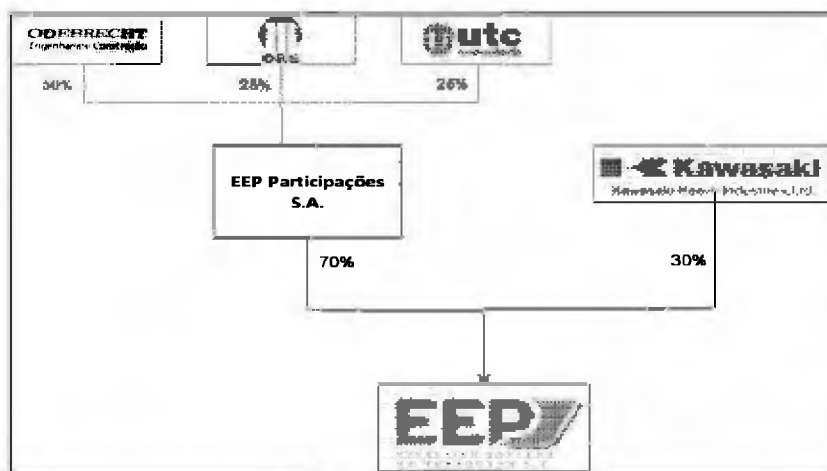
From our experience on other DRU projects the Dalian and New Dalian yards generally performed well, particularly latterly. The Nantong yard was predominantly set up for FPSO work rather than DRUs.

#### **4.2.6 Estaleiro Enseada Paraguaçu (EEP)**

Four of the six drillships designed by MSC Gusto Q Drill design are to be built at the Enseada Paraguaçu shipyard, in Maragogipe (Bahia) will be operated by Odebrecht and the remaining two by Etesco. The Bahia shipyard is in the initial construction phase.



Enseada Paraguaçu Shipyard, a project of Odebrecht OAS and UTC, in Bahia, will build six drillships. Enseada executed a licensing agreement with the Dutch company Gusto, which will provide the design of the rigs and has announced the Japanese company Kawasaki Heavy Industries as its new technological partner in the construction and integration of offshore units, such as rigs, specialized ships and drilling units.



With the creation of the joint venture, Kawasaki became EEP's permanent partner, with 30% interest, promoting technological transfer for the development of the Brazilian naval industry and the training of local labor.

#### 4.2.6.1 Kawasaki (KHI)

Kawasaki Heavy Industries is a major Japanese conglomerate which includes shipbuilding in its portfolio.

Kawasaki Heavy Industries, Ltd. has two shipyards at Kobe and Sakaide in Japan, and has constructed and repaired all types of ships, using extensive



experience of "a century of shipbuilding" and the newest technology. Kawasaki has delivered various merchant ships such as bulk carriers, container ships and oil tankers as well as LNG and LPG carriers. Kawasaki has also developed and constructed the various research vessels and offshore structures. It does not however have specific experience in drillships but this is not considered a major risk in this case as the build process will be the same and in the case of drillships the specialists manufacturers are heavily involved during the construction process of their equipment.

Kawasaki will have EEP as its third international partner, since it already had a successful technological transfer experience through joint ventures with two shipyards in China: Nantong COSCO KHI Ship Engineering Co., Ltd. (NACKS) and Dalian COSCO Shipbuilding Industry Co., Ltd. (DACOS).

In order to meet with the first DRU delivery, construction will commence at KHI in June 2013 (hull up to upper deck). This period will also be used for training of Brazilian personnel for EEP then KHI personnel will transfer with the vessel to continue training in Brazil.

There is a concern over this first vessel which is required on charter within 48 months of contracting which is considered tight given that EEP is a green field site. To mitigate this to some extent EEP intend to construct megablocks at the adjacent São Roque yard after that yard has completed the P-59 and P-60 jack-up drilling rigs it is presently constructing for Petrobras.

#### **4.2.7 Personnel & Training**

This is a large project for Brazil / Petrobras that is coupled with other large projects (FPSOs & Tankers for Petrobras / Subsidiaries) it takes up a significant portion of the shipyards' total capacity both in relation to construction and personnel (expected total requirement is estimated at 17,900 workers). There is also significant support from the Brazilian government for development of both the shipyard and oil and gas industries to release income from the oil and gas market.

Accenture has been engaged to map workforce gaps in relation to numbers, qualifications and experience to trace supply and demand areas.

Overall this is being sponsored by PROMINP, a governmental training program managed and partly funded by Petrobras, which selects suitable personnel on a regional basis for training at one of their three local establishments of SENAI and public and private technical schools and Universities as illustrated below. PROMINP also retains a database of skilled and qualified alumni.

To date, 80,000 workers have been trained with a capacity for another 212,600 by 2015 (compared to the estimated 17,900 personnel requirement above). It is understood however that currently there is a high attrition rate and 2 to 3 out of a group of 10 ultimately go through to positions of responsibility (i.e. to a supervisor level).

SENAI is a governmental national training scheme covering all levels from basic levels to graduate and post graduate personnel.

Each shipyard has a specific workforce training program in place and currently all appear to be performing satisfactorily.

An arrangement of the setup is illustrated below;







### **4.3 OPERATORS**

#### **4.3.1 General**

Global operators have been pre-qualified for selection as possible operators (selected operators in bold);

Atwood Oceanics, Inc.

**Odebrecht Óleo & Gas Ltda.**

Brasdril Sociedade de Perfurações Ltda.

Dolphin Drilling Ltd.

Ensco International Inc.

**Etesco Construções e Comércio Ltda.**

Maersk Brazil Brasmar Ltda.

Noble do Brazil S/C Ltda.

Ocean Rig ASA;

**Odfjell Drilling AS;**

Pacific Drilling;

**Petroserv S.A.**

Pride do Brazil Serviços de Petróleo Ltda.

**Queiroz Galvão Óleo e Gás S.A.**

Saipem do Brazil Ltda.

**Seadrill Ltd.**

Sevan Marine do Brazil Ltda.

Transocean Brazil Ltda.

Vantage Drilling Co.

There are no major technical reservations as to the capability of any of those identified.

To date those listed below have been selected but all rigs do not as yet have a nominated operator.

Sete has developed a discrete sub-project to meet the demands of its 29 under construction drillings rigs and also the individual personnel profile necessary for those positions. The project was developed together with the Operators since they are responsible for hiring.

The current scenario Sete is leading in discussions with PROMINP in a position to support the development of those human resources. Eventually the Sete role will be to monitor the personnel qualification under the assumptions previously defined with the Operator.

The main issue to control going forward if a standard set of DRUs is to be achieved is to have an operators' design freeze to prevent operator differences in any single design / yard where multiple operators are involved.



The project is ongoing, thus the monitoring schedules and start dates are shown on the table below;

| Delivery | Message  | Channel                     | Frequency     | Start    |
|----------|--|-----------------------------|---------------|----------|
| Operator | Follow up of the intermediate and advanced positions qualification | Evaluate performance report | Quarterly     | 06/06/13 |
| PROMINP  | Follow up of the basic position qualification                      | Reports                     | Semi-annually | 06/06/13 |

A brief summary of the shortlisted companies (not currently awarded contracts) is shown below.

|                                     |   |                            |
|-------------------------------------|---|----------------------------|
| Atwood Oceanics                     | Atwood Oceanics is engaged in the international offshore drilling and completion of exploratory and developmental oil and gas wells. Its operations include nine offshore mobile drilling units located in five regions: Southeast Asia, Africa, Australia, South America and the Mediterranean Sea   | Total: 9<br>Deepwater: 0   |
| Brasdril (Diamond)                  | Diamond Offshore is a global offshore oil and gas drilling contractor. The company provides offshore drilling services to a customer base that includes independent oil and gas companies and government-owned oil companies. It offers a range of services worldwide in various markets, including the deepwater, harsh environment, conventional semi-submersible and jack-up markets | Total: 46<br>Deepwater: 9  |
| Dolphin Drilling (Fred Olsen Group) | Dolphin Drilling is Norwegian company and one of the oldest independent drilling offshore in the area. Dolphin Drilling's fleet include one ultra deepwater DP drillship, one deepwater moored semi, three conventional water depth semi-submersible and one accommodation semi-submersible.  | Total: 6<br>Deepwater: 2   |
| Ensco International                 | Ensco is a global offshore contract drilling company. Operates in Asia Pacific, Europe and Africa and North and South America. The company is engaged in the drilling of offshore oil and gas wells by providing its drilling rigs and crews under contracts with major international, government-owned and independent oil and gas companies   | Total: 73<br>Deepwater: 0  |
| Maersk Drilling                     | Maersk is part of the conglomerate AP Moller-Maersk group with experience of almost 50 years. Currently it operates in the North Sea, Algeria, Angola, Gulf of Mexico, Turkmenistan, Morocco, Brazil, Colombia and Suriname with 3500 employees. The fleet consists of semi-submersible deepwater drilling barges and jack up platforms   | Total: 28<br>Deepwater: 3  |
| Noble                               | Noble is the oldest company operating in the sector, with experience of more than 90 years. It operates in all major offshore fields in the world including the Middle East, India, Gulf of Mexico, North Sea, Africa, and Asia Pacific. In Brazil currently has six rigs in operation  | Total: 62<br>Deepwater: 11 |



|                  |   |                            |
|------------------|---|----------------------------|
| Ocean Rig        | Ocean Rig owns and operates two ultra deepwater rigs and four drillships). The company has four further drillships under construction at Samsung with scheduled delivery in 2013 - 2015   | Total: 6<br>Deepwater: 6   |
| Pacific Drilling | Pacific Drilling has four deepwater rigs and three under construction   | Total: 6<br>Deepwater: 6   |
| Saipem           | Saipem SpA is an Italy-based company active as contractor in the oil and gas industry in remote areas and deepwater. The Company is organized into two business units: engineering & construction and drilling. Saipem is a subsidiary of the Italian group ENI   | Total: 11<br>Deepwater: 3  |
| Sevan            | Sevan Marine ASA is a Norway-based company engaged in floating production of oil and gas. The Company is also active within deepwater drilling based on its cylindrical hull design. It is also engaged in the development of other applications, including floating Liquefied Natural Gas production and power plants with carbon dioxide capture. Was founded in 2001 and employs approximately 400 employees | Total: 1<br>Deepwater: 1   |
| Transocean       | Largest offshore driller globally. International provider of offshore contract drilling services for oil and gas wells. Recently acquired Aker Drilling (Norway) for US\$1.4bn  | Total: 81<br>Deepwater: 21 |
| Vantage Drilling | Vantage is drilling company focused on operating a fleet of drilling units. The company's primary business is to contract drilling units, related equipment and work crews primarily on a day rate basis to drill oil and natural gas wells for its customers. It also provides construction supervision services for drilling units owned by others  | Total: 7<br>Deepwater: 3   |
| Grupo R          | Group R is a company specialized in providing services to the oil and gas industry. Leader in the Mexican drilling segment, where it is based. Founded in 1956, its operations are divided in offshore construction, engineering, onshore and offshore drilling and transportation  | Total: 3<br>Deepwater: 3   |

Source Subsea Org- Drilling Companies & Company Websites

Current operators selected for contracting are outlined below (their current fleets details are given in the Appendix).

#### **4.3.2 Seadrill**

Seadrill is a leading offshore deepwater drilling company, operating fleet of 67 units that comprises drillships, jack-up rigs, semi-submersible rigs and tender rigs for operations in shallow to ultra-deepwater areas in harsh environment and benign environments.

#### **4.3.3 Odebrecht**

Odebrecht has provided services to the Brazilian oil industry since the late 1950's, when it began its long-term, trusted relationship with the then newly-created Petrobras. Since 1997, it has operated the FPSO oil production rig called the North Sea Producer in partnership with Maersk FPSOs which is responsible for the exploration of the Maculloch field in the British Waters of the North Sea for Conoco Phillips.

The company also offers offshore drilling rig chartering and operation services for deep water projects. In 2011, the Norbe VI submersible rig began operating in Brazil, followed by the drilling rigs Norbe VIII and Norbe IX. In 2012, the semi-submersible drilling unit ODN Delba III began its drilling operations.

Two new drilling ships finished construction in South Korea - the ODN I and ODN II. These units are capable of drilling in water depths of up to 3,000 meters. They began operating in 2012.

In 2006, Odebrecht concentrated its investments in oil and gas in a new company, Odebrecht Óleo e Gás (OOG).

OOG provides integrated, customized solutions for the upstream oil industry in Brazil and around the world from design engineering, project management, and integrated service delivery to offshore drilling rigs and production platforms including the new challenges in deep water and the pre-salt.

OOG offers chartering and deep-water offshore drilling rig operation services. The drilling fleet consists of four drillships and three semi-submersible rigs. Oil being discovered in the pre-salt cluster set a new era for the development of the oil industry in Brazil.

Its current fleet consists of 4 drilling semi-submersibles, 4 mono-hulled drillships, two FPSOs and 2 pipe laying vessels.

#### **4.3.4 Etesco**

Founded in 1956, Etesco became one of the most important contractors in Brazil in the fields of water and sewer, highways, urban drainage systems, gas pipelines, oil & gas drilling services and port dredging.

In 2000, Etesco engaged in Oil & Gas projects, which the company forecasted to play an important role in the future growth of economies worldwide in this century. By 2010, following strong growth in the decade, the company became one of the market leaders in the Brazilian offshore industry. The company is either an owner, or operator, or both in 6 drilling and production off shore units, including an ultra-deepwater driller.

Etesco will operate the DRUs in a joint venture with OAS O&G.

**4.3.5 Queiroz Galvão Óleo e Gás**

Queiroz Galvão Óleo e Gás (QGOG) is a Brazilian oil services provider and drilling and production services contractor. It currently operates six onshore and four offshore rigs and has an interest in one FPSO. Two additional drillships and one FPSO, in which the company also has an interest, are under construction, in addition to three onshore rigs in transit; all have been contracted. The company operates as a subsidiary of local engineering firm Queiroz Galvão. QGOG was founded in 1980 and is based in Rio de Janeiro, Brazil.

The drilling business was started: Queiroz Galvão Perfurações S.A., which later, in 2006, came to be called Queiroz Galvão Óleo e Gás (QGOG).

It is now one of the largest providers of services related to drilling and production in Brazil, on land and sea, in shallow and deep water, pledging to turn the present into a sustainable future.

It is one of the biggest private national companies of the sector, and the first one certified by the National Petroleum Agency ("ANP") as authorized Operator, to explore wells inshore and in shallow and deep water.

**4.3.6 Odfjell Drilling**

Odfjell Drilling has partnered with Galvão Oleo & Gás for this Sete Brasil project for both charter and service, associated with Petrobras' new-build program.

Odfjell Drilling and Brazilian industrial group Galvão Engenharia have formed a joint venture with the aim to own and manage the three drillships and develop future opportunities in the Brazilian drilling market. The Odfjell Galvão joint venture is owned on a 50/50 basis and will have a 20 percent stake in the three drillships. Odfjell Galvão will be responsible for management of the DRUs throughout the contract period.

Odfjell Drilling is currently operating the Deepsea Metro II also on a contract for Petrobras. Deepsea Metro II is an ultra-deepwater drillship owned by Metrostar (60 percent) and Odfjell Drilling (40 percent) suitable for drilling operations at water depths up to 12,000 feet.

**4.3.7 Petroserv**

Petroserv S.A. operates as an offshore service company. The company repairs and provides drilling rigs and ships engaged in oil and gas exploration and production. It is based in Rio de Janeiro, Brazil, with an operational base in Macaé.

Through its sister company Oceânica it supplies engineering and project management for offshore and naval projects, with strong experience in ship and offshore units design and analysis.

**4.4 CHARTERER****4.4.1 Petrobras**

Petrobras is Brazil's main integrated energy provider and has upwards of 100 production platforms, 16 refineries, 30,000 kilometers of pipelines and more than 6,000 service stations. Their proved reserves are around 14 billion barrels of oil, a figure expected to double in the next few years with the discovery of oil and gas in the pre-salt region.



They built a track record of overcoming challenges since 1953, when the company was created. The main one was developing technology to explore and produce oil in deep and ultra-deep waters, where upwards of 90% of their reserves are located.

It is understood that Petrobras will charter all of the DRUs on a 15 year basis from delivery and successful completion of their standard pre charter audit. Their standard charter document is a proven document and its terms and conditions are widely understood by the industry.

It has been advised that Petrobras' engineering department is providing engineering approval services in relation to all of the DRUs and is therefore fully aware of the charter requirements during the engineering approval phase.

#### **4.5 CLASS / FLAG**

All DRUs will be classed through the American Bureau of Shipping ("ABS") a leading member of the International Association of Classification Societies ("IACS").

Class will have permanent dedicated surveyors in each shipyard and in the other construction / manufacturing sites as well.

The vast majority of vessels are built and surveyed to the standards laid down by classification societies. These standards are issued by the classification society as published rules. A vessel that has been designed and built to the appropriate rules of a society may apply for a certificate of classification from that society. The society issues this certificate upon completion of relevant classification surveys. Such a certificate does not imply, and should not be construed as an express warranty of safety, fitness for purpose or seaworthiness of the ship.

It is an attestation only that the vessel is in compliance with the standards that have been developed and published by the society issuing the classification certificate. Class rules do not cover every piece of structure or item of equipment on board a vessel, nor do they cover operational elements.

The DRUs will operate under the following flag authorities;

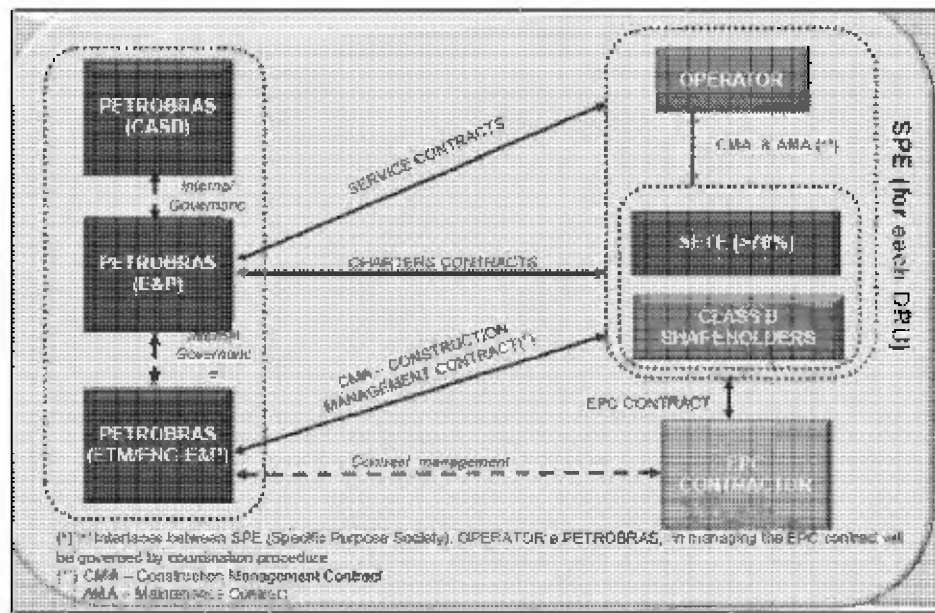
|                  |  |
|------------------|--|
| Marshall Islands | EAS, Keppel, ERG and EEP (21 in total) |
| Panama           | Jurong (7)                             |

Under the United Nation Convention on the Law of the Sea ("UNCLOS") a flag State has the ultimate authority over a ship flying its flag. It is also held ultimately responsible for the conduct, safety and environment protection of a ship flying its flag. It is the flag state authority that signs up to the various international rules and regulations and is responsible for their vessels' compliance. They may even instigate specific rules and regulations for vessels under their responsibility. Occasionally, flag will delegate responsibility for carrying out inspections on their behalf to Class (although the flag authority is still ultimately responsible).

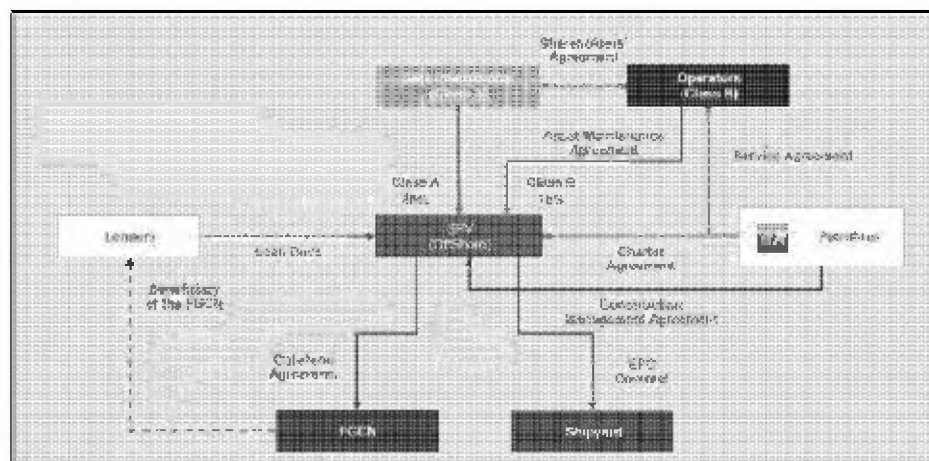


**5 CONTRACTS / CHARTER****5.1 GENERAL**

The master contractual setup between the parties concerned is;



The contractual setup for each DRU is via individual Special Purpose Vehicle ("SPC") companies set up in the Netherlands.



Within the SPC arrangements there is a further breakdown between Petrobras, Sete and the operators;

Petrobras S.A., via its rig contracting department (PGSU) signed a "Charter Contract" with each SPC and a "service Contract" with each Operator.

The SPC contracted the construction of the DRU via an EPC contract with a shipyard and the construction management and survey via 3 (three) agreements (the three CMA's) with:

- (i) Petrobras S.A.-Engineering Department
- (ii) The respective Operator
- (iii) Sete Brasil

Sete Brasil will also contract specialized offshore drilling consultants in the international market, one per shipyard, to assist Sete in the various discussions with Petrobras S.A., the Operators and the yards.

Behind the construction contracts is a Brazilian guarantor fund FGCN set up on a first loss basis for credit and performance risk insurance (the former being obligatory for SPCs). The total of the guarantee is up to 50% of the outstanding loan agreement and up to 10% of the EPC contract for each SPC. Examples of events covered by the FGCN are;

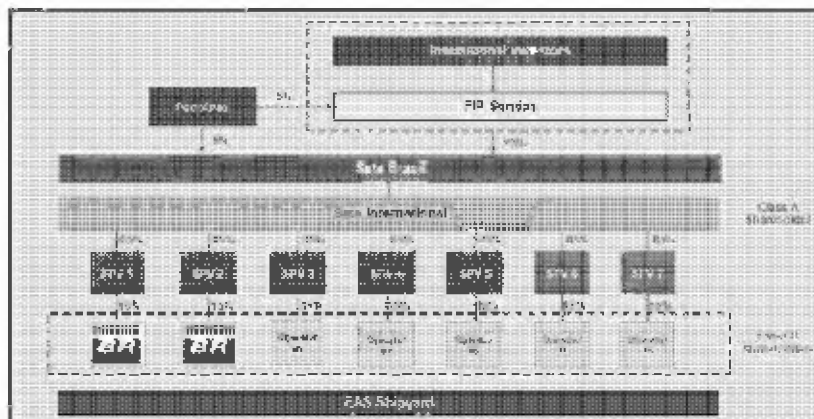
- Bankruptcy (or financial distress) of the shipyards
- Construction delays if the responsible party is the shipyard
- Technical difficulties by the shipyard
- Technical issues that lead to rejection of the DRUs by Petrobras

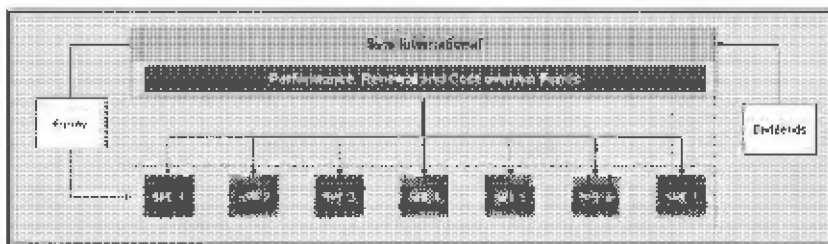
The fund is private and initially capitalized by the Brazilian government to the amount of R\$5.0 billion, of which at least 80% are for guarantee credit and performance risk for pre-salt drilling rigs in Brazilian shipyards.

## **5.2 CONTRACTS**

### **5.2.1 Consortium Agreement & Tender Participation Agreement**

Both documents are in Portuguese but appear to confirm the consortium partners for each specific DRU together with the equity percentage for each party and their agreement to mutually cooperate in relation to the project.





These agreements also refer to the O&M and Asset Management Agreements and are yet to be formally signed.

### 5.2.2 Contract Management Contract

The CMA contracts with Petrobras, the Operator and the Owner (SPC) are not yet signed in all cases, further negotiations are still ongoing.

|             |  |
|-------------|--|
| Coverage    | Design, engineering, procurement, supply, construction, commissioning and completion of the DRU (note that delivery will be to Petrobras account eventually but will be paid for first by Sete then recompensed by the Mobilization payment after formal acceptance by Petrobras)  |
| Termination | Due to insolvency<br>A material breach not rectified within 60 days<br>Termination of the EPC contract for whatever reason<br>Delivery acceptance of the DRU   |
| Price       | USD \$8 million paid in 48 equal monthly payments for the EAS DRUs and USD \$16 million for the remaining DRUs<br>Reimbursable expenses capped at USD \$350k<br>The total budget allowed for the CMA (Petrobras, Sete and the operators), is reported as USD 950 million (i.e. USD 450 million over the direct contracted price above) |
| Law         | New York State (including arbitration)   |

The wording of these agreements covers the expected requirements of a construction monitoring project and generally covers the expected requirements to successfully run the project.

### 5.2.3 Engineer Procure Construct Agreements

The EPC contracts, one contract for each DRU, are identical for all the units of a particular shipyard, except for the time schedules. All of them cover the full scope of supply (i.e. design, engineer, procure, construct, install, complete and commission). In addition there is a requirement to comply with the ANP requirements for local content. The item not covered as such, other than consent licenses, is the civil works (including environmental issues) for the yard construction and/or extension (affecting EEP, EJA and ERG in the main).

Sete Brasil calls the EPC contracts with EAS as "contracts of the first system" and the EPC contracts with EEP, EJA, BrasFELS and ERG as the "second system".

The EPC contracts of the 4 yards of the Second System are nearly identical, except for the time schedules, the particular securities provided by the yard and some other details.

However, the BrasFELS EPC contract, which is for semi-submersible DRU's, has a payment procedure following Construction Milestones, whilst the three other yards have ship type DRU's with a payment scheme by measurement of the progress based on the Work Breakdown System, which is the same procedure as the first system.

The contract payment is more complex than a typical project set up.

Contract milestones for the semi-submersibles at BrasFELS are more complex than a standard 5x20% arrangement (see percentages in brackets for comparison). In total, there are 13 milestone payments as follows (taken from DRU 8 semi-submersible). This will give better control over the construction performance; however we would have liked to have seen larger payments towards delivery as an incentive to deliver (compare 20% to 5%).

|                                      |     |      |
|--------------------------------------|-----|------|
| Contract (20%)                       | 10% | 10%  |
| Strike steel Upper Hull              | 5%  | 15%  |
| Strike steel Lower Hull              | 5%  | 20%  |
| Keel Laying (20%)                    | 12% | 32%  |
| Upper Hull assembly                  | 10% | 42%  |
| Installation first engine (20%)      | 12% | 54%  |
| Undock pontoon                       | 12% | 66%  |
| Lower hull consolidation             | 6%  | 72%  |
| Start engine load test               | 6%  | 78%  |
| Leave for marine mating (20%)        | 6%  | 84%  |
| Startup of draw works                | 6%  | 90%  |
| Leave for anchorage (thruster works) | 5%  | 95%  |
| Delivery (20%)                       | 5%  | 100% |

Title transfer takes place at delivery acceptance and performance is guaranteed against a single parent company guarantee rather than individual milestone payment refund guarantees.

The remaining four yards have a rather unique payment strategy based on a monthly measured lump sum basis (with a monthly cap element).

The principle is the same for all the four yards, but the numbering of the contract Exhibits vary.

1 - The Exhibit "Price Schedule" gives the total price and the split of currencies for each DRU of each hull of the yard. They are all equal.

2 - The "Measuring Criteria" is described in the Exhibit "Lump Sum Price Distribution". The further steps until payment are described in the EPC contract, under "Measuring".



3 - The progress report is completed by the shipyard and, with the values of each performed activity as described and taken from the "APPENDIX 1" of the Lump Sum Price Distribution, the measuring is summed-up. All evidence documents are attached within, resulting in a "measuring report", which is submitted by the shipyard to the CMA Petrobras for approval every month.

Once the Measuring Report is approved, the shipyard invoices accordingly and the invoice is submitted to the SPC, again following the contractual procedure. The value of the invoice is compared to the so called "Monthly Cap" or maximum monthly cash flow and paid up to this limit. Remaining values will be paid in the next month, accrued with the next "Monthly Measuring Report", and the total is again limited by the "Cap". See example of breakdown below.

In the case of EAS there is also a "Cap", but for the accrued value of all 7 DRU's.

For illustrative purposes see sample Cap illustration related to progressive measurement / payments below (all yards are similar);

*Title to Works - Title to the Works shall pass to Owner upon the earlier of (i) payment by Owner; or (ii) incorporation into such DRU, amounting to delivery of such DRU in sheltered waters in accordance with this Agreement. For the purposes of this item (b), Contractor shall, upon each payment made hereunder, issue a declaration, in the form attached hereto as Exhibit XXIX, evidencing the transfer to the Owner of the title and ownership of the Works performed and any and all Equipment and/or materials related therewith.*

This appears to be an overly complicated arrangement.

There are consequently no refund guarantees for these projects and there is an Exhibit to the contract to the effect that the yards have no right of ownership and cannot with hold a part completed DRU during engineering and construction. Formal ownership acceptance is again at delivery.

The contracts themselves are comprehensive and have 35 Exhibits detailing specific requirements throughout. They should therefore provide tight technical control.

**GL Noble Denton**
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**TECHNICAL DUE DILIGENCE REVIEW**
**Payment Cap Example**

| TOTAL PRICE IN USD USD 792,497,379.95 |  |  |
|---------------------------------------|--|--|
| MONTH<br>(A)                          | Max Cumm. Cap Payment<br>% Based On EIA Proposal<br>14-Dec-11<br>(B) | Monthly Payment % Based<br>On Max Cumm Cap. EIA<br>Proposal 14-Dec-11<br>(C) |
| 1                                     | 4.50%  | 4.50%  |
| 2                                     | 6.28%  | 1.78%  |
| 3                                     | 8.00%  | 1.72%  |
| 4                                     | 9.71%  | 1.71%  |
| 5                                     | 10.71%   | 0.50%  |
| 6                                     | 12.50%   | 2.29%  |
| 7                                     | 14.55%   | 2.69%  |
| 8                                     | 16.75%   | 1.76%  |
| 9                                     | 20.70%   | 3.94%  |
| 10                                    | 22.03%   | 1.33%  |
| 11                                    | 22.98%   | 0.96%  |
| 12                                    | 24.82%   | 1.84%  |
| 13                                    | 26.27%   | 1.45%  |
| 14                                    | 28.87%   | 2.60%  |
| 15                                    | 33.09%   | 4.22%  |
| 16                                    | 35.71%   | 2.62%  |
| 17                                    | 37.88%   | 2.17%  |
| 18                                    | 39.09%   | 1.21%  |
| 19                                    | 43.06%   | 3.97%  |
| 20                                    | 46.90%   | 3.84%  |
| 21                                    | 49.89%   | 2.98%  |
| 22                                    | 53.10%   | 3.21%  |
| 23                                    | 56.86%   | 3.76%  |
| 24                                    | 60.00%   | 3.34%  |
| 25                                    | 64.32%   | 4.32%  |
| 26                                    | 67.30%   | 2.98%  |
| 27                                    | 70.30%   | 3.00%  |
| 28                                    | 73.52%   | 3.22%  |
| 29                                    | 75.51%   | 1.99%  |
| 30                                    | 78.30%   | 2.79%  |
| 31                                    | 81.74%   | 3.44%  |
| 32                                    | 84.49%   | 2.75%  |
| 33                                    | 87.00%   | 2.51%  |
| 34                                    | 89.46%   | 2.46%  |
| 35                                    | 91.25%   | 1.84%  |
| 36                                    | 93.00%   | 1.71%  |
| 37                                    | 94.14%   | 1.14%  |
| 38                                    | 95.10%   | 0.95%  |
| 39                                    | 96.00%   | 0.90%  |
| 40                                    | 96.94%   | 0.94%  |
| 41                                    | 98.05%   | 1.12%  |
| 42                                    | 100.00%  | 1.95%  |
| <b>TOTAL</b>                          |  | <b>100.68%</b>   |

In addition to the global local content requirements of between 55 and 65% (lower values for the earlier DRUs) there are additional specific levels for equipment as follows;

|                                   |        |
|-----------------------------------|--------|
| Generation, propulsion, DP system | 40-70% |
| Drilling Package                  | 20-50% |

There is a specific Exhibit detailing the definition and extent of these systems. Should the required content not be reached there is liquidated damages provision amounting to 20% of the difference in system price between the required local content price and the actual local content achieved.

The Reais element of the contract price where applicable is subject to and agreed adjustment factor (details are given in the Appendix). There are similar but simpler price adjustment factors for;

- US Dollar exchange
- Euro exchange
- Steel price

Warranty periods are considered standard shipyard offerings and no extended guarantees are in place which is expected of current similar projects (2 years for steelwork and 5 to 10 year for coatings). The basic guarantee is 12 months with a further 12 months if a defect is found within the initial guarantee period (this relates to the specific defect only).

Liquidated damages apply to delays only as follows;

|                  |                          |
|------------------|--------------------------|
| 1 - 8 weeks      | 0.02% of contract price  |
| 9 - 12 weeks     | 0.03 % of contract price |
| 17 weeks onwards | 0.1% of contract price   |

The maximum damages are capped at 10% of the contract price.

The Owner has the right to terminate the contract should a delay in excess of 730 days is experienced. Additionally (apart from the usual termination clauses) the Owner can terminate, at its convenience, in whole or part with 30 days' notice.

The contract and arbitration is governed by the laws of the State of New York.

#### **5.2.4 O&M and Asset Management Agreement**

These are currently still under negotiation with the respective operators concerned. Currently operator involvement is governed by the agreements in 5.2.1 above.

### **5.3 CHARTER / SERVICES AGREEMENT**

#### **5.3.1 General**

The operation aspect of the DRUs is carried out through two agreements, a charter (for the asset itself) and a service agreement (for its operation and maintenance) and the two, whilst separate documents are linked together as a package. Both documents are considered standard Petrobras documents and should be familiar to all operators / owners.





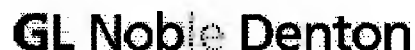
Long-term Charter Contracts are in place (5x10-years; 21x15-years and 2x20-years). The first contract renewal is scheduled for 2027 (rigs No. 3 and No. 4).

**5.3.2 Charter**

The charter document is a standard Petrobras agreement and as such all operators should be conversant with its requirements. The DRUs will only commence operations under this agreement after a pre-charter audit by Petrobras has been conducted at either Macaé, Rio de Janeiro or at the final location for the DRU whichever suits Petrobras.

The charter includes set formulae for price adjustment (6.2 - 6.4) which can result in an escalation or de-escalation depending upon market conditions at the time of the charter renewal.

See the Charter Agreement key points listed below per DRU.



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### CHARTER OVERVIEW for DRUs 1 through 7

|                               | DRU<br>NAME | DRU 1<br>Arpoador     | DRU 2<br>Copacabana   | DRU 3<br>Grumari      | DRU 4<br>Ipanema      | DRU 5<br>Leblon       | DRU 6<br>Leme         | DRU 7<br>Marambaia    |
|-------------------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Term (days)                   |             | 7,300                 | 7,300                 | 3,650                 | 3,650                 | 3,650                 | 3,650                 | 3,650                 |
| Term (years)                  |             | 20                    | 20                    | 10                    | 10                    | 10                    | 10                    | 10                    |
| Commencement                  |             | 5/25/2015             | 3/20/2016             | 11/15/2016            | 7/13/2017             | 3/10/2018             | 11/5/2018             | 7/3/2019              |
| End                           |             | 5/20/2035             | 3/15/2035             | 11/13/2025            | 7/11/2027             | 3/7/2028              | 11/2/2028             | 5/30/2029             |
| Operating Dayrate in Euro     |             | € -                   | € -                   | € -                   | € -                   | € -                   | € -                   | € -                   |
| Operating Dayrate in USD      |             | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         |
| Operating Dayrate in Real     |             | R\$ -                 | R\$ -                 | R\$ -                 | R\$ -                 | R\$ -                 | R\$ -                 | R\$ -                 |
| Estimated total rate in USD   |             | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         | \$ 331,000.00         |
| Move, Pre-Op and Commiss      |             | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      |
| Demobilization Rate           |             | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  |
| Movement Rate                 |             | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    |
| Bad Weather Rate              |             | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    |
| Awaiting Rate                 |             | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    | 90% operating rate    |
| Repair Rate                   |             | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  |
| Force Majeure Day 1-30        |             | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    |
| Force Majeure Day 31 - 60     |             | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    |
| Force Majeure Day 61+         |             | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  |
| Docking Grace Period (per yr) |             | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd |
| Daily Delay Fines < 180       |             | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    |
| Daily Delay Fines 183 - 365   |             | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   |
| Daily Delay Fines 366 - 547   |             | 15%                   | 15%                   | 15%                   | 15%                   | 15%                   | 15%                   | 15%                   |
| Daily Delay Fines > 548       |             | 20%                   | 20%                   | 20%                   | 20%                   | 20%                   | 20%                   | 20%                   |
| Total Max Fines               |             | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 55 of 192



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### CHARTER OVERVIEW for DRUs 8 through 14

| DRU                           | DRU 8                    | DRU 9                    | DRU 10                   | DRU 11                   | DRU 12                   | DRU 13                   | DRU 14                   |
|-------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| NAME                          | Urca                     | Frade                    | Bracuby                  | Portogalo                | Mangaratiba              | Botinas                  | Ondina                   |
| Term (days)                   | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    |
| Term (years)                  | 15                       | 15                       | 15                       | 15                       | 15                       | 15                       | 15                       |
| Commencement                  | 7/16/2016                | 5/16/2017                | 1/16/2018                | 9/16/2018                | 5/16/2019                | 1/16/2020                | 9/10/2016                |
| End                           | 7/13/2031                | 5/12/2032                | 1/12/2033                | 9/12/2033                | 5/12/2034                | 1/12/2035                | 8/7/2031                 |
| Operating Dayrate in Euro     | € -                      | € -                      | € -                      | € -                      | € -                      | € -                      | € 18,613.70              |
| Operating Dayrate in USD      | \$ 169,969.16            | \$ 174,318.27            | \$ 170,974.58            | \$ 173,957.34            | \$ 171,777.75            | \$ 173,866.17            | \$ 164,308.92            |
| Operating Dayrate in Real     | R\$ 461,782.45           | R\$ 466,775.31           | R\$ 465,963.16           | R\$ 467,500.08           | R\$ 470,590.70           | R\$ 467,255.07           | R\$ 447,281.45           |
| Estimated total rate in USD   | <del>\$ 399,969.56</del> | <del>\$ 396,592.23</del> | <del>\$ 392,861.83</del> | <del>\$ 396,576.43</del> | <del>\$ 395,866.56</del> | <del>\$ 396,346.56</del> | <del>\$ 401,437.90</del> |
| Mob, Pre-Op and Commiss       | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         |
| Demobilization Rate           | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Movement Rate                 | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Bad Weather Rate              | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Awaiting Rate                 | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Repair Rate                   | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Day 1-30                      | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       |
| Force Majeure Day 31 - 60     | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       |
| Day 61+                       | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Docking Grace Period (per yr) | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | Exhibit not yet Rec'd    |
| < 180                         | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       |
| Daily Delay 183 - 365         | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       |
| Fines 366 - 547               | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      |
| > 548                         | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      |
| Total Max Fines               | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 56 of 192



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

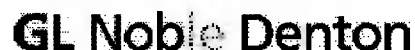
### CHARTER OVERVIEW for DRUs 15 through 21

| DRU                           | DRU 15                | DRU 16                | DRU 17                | DRU 18                | DRU 19                | DRU 20                  | DRU 21                  |
|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|
| NAME                          | Pituba                | Bolpeba               | Interlagos            | Itapema               | Comandatuba           | Guarapari               | Camburi                 |
| Term (days)                   | 5,475                 | 5,475                 | 5,475                 | 5,475                 | 5,475                 | 5,475                   | 5,475                   |
| Term (years)                  | 15                    | 15                    | 15                    | 15                    | 15                    | 15                      | 15                      |
| Commencement                  | 6/10/2017             | 10/10/2018            | 6/10/2019             | 2/10/2020             | 10/10/2020            | 7/20/2016               | 5/20/2017               |
| End                           | 6/6/2032              | 10/6/2033             | 6/6/2034              | 2/6/2035              | 10/7/2035             | 7/17/2031               | 5/16/2032               |
| Operating Dayrate in Euro     | € 18,652.95           | € 18,609.98           | € 18,648.95           | € 18,795.47           | € 18,867.57           | € 44,106.05             | € 43,993.52             |
| Operating Dayrate in USD      | \$ 164,518.80         | \$ 164,736.63         | \$ 164,943.89         | \$ 164,095.91         | \$ 165,067.85         | \$ 137,339.26           | \$ 138,084.41           |
| Operating Dayrate in Real     | R\$ 446,766.93        | R\$ 447,552.50        | R\$ 447,028.77        | R\$ 428,362.44        | R\$ 430,831.98        | R\$ 401,739.08          | R\$ 407,418.23          |
| Estimated total rate in USD   | \$ 401,513.79         | \$ 402,309.84         | \$ 402,318.37         | \$ 392,326.42         | \$ 394,753.78         | \$ 385,981.45           | \$ 389,264.67           |
| Mob, Pre-Op and Commiss       | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00      | \$ 30,000,000.00        | \$ 30,000,000.00        |
| Demobilization Rate           | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                    | Zero                    |
| Movement Rate                 | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 90% operating rate      | 90% operating rate      |
| Bad Weather Rate              | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate      | 95% operating rate      |
| Awaiting Rate                 | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate      | 95% operating rate      |
| Repair Rate                   | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                    | Zero                    |
| Force Majeure Day 1-30        | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate      | 80% operating rate      |
| Force Majeure Day 31 - 60     | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate      | 50% operating rate      |
| Force Majeure Day 61+         | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                    | Zero                    |
| Docking Grace Period (per yr) | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | 6 days at Awaiting Rate | 6 days at Awaiting Rate |
| Daily Delay < 180             | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                      | 5%                      |
| Daily Delay 183 - 365         | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                      | 5%                      |
| Daily Delay 366 - 547         | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                     | 10%                     |
| Daily Delay > 548             | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                     | 10%                     |
| Total Max Fines               | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract         | 10% of contract         |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 57 of 192





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### CHARTER OVERVIEW for DRUs 22 through 28

|                               | DRU         | DRU 22                   | DRU 23                   | DRU 24                   | DRU 25                   | DRU 26                   | DRU 27                   | DRU 28                   |
|-------------------------------|-------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                               | NAME        | Itaoca                   | Itaunas                  | Siri                     | Sahy                     | Cassino                  | Curumim                  | Salinas                  |
| Term (days)                   |             | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    | 5,475                    |
| Term (years)                  |             | 15                       | 15                       | 15                       | 15                       | 15                       | 15                       | 15                       |
| Commencement                  |             | 1/20/2018                | 5/20/2019                | 1/20/2020                | 9/20/2020                | 8/10/2015                | 2/10/2018                | 10/10/2018               |
| End                           |             | 1/16/2033                | 5/16/2034                | 1/16/2035                | 9/17/2035                | 8/7/2031                 | 2/6/2033                 | 10/6/2033                |
| Operating Dayrate In Euro     |             | € 44,900.04              | € 44,783.99              | € 45,446.51              | € 45,158.22              | € 7,747.74               | € 7,402.85               | € 7,485.67               |
| Operating Dayrate In USD      |             | \$ 138,336.23            | \$ 139,070.34            | \$ 138,994.44            | \$ 139,197.19            | \$ 176,124.07            | \$ 171,528.22            | \$ 172,182.42            |
| Operating Dayrate In Real     |             | R\$ 406,980.62           | R\$ 412,686.92           | R\$ 410,453.94           | R\$ 414,820.60           | R\$ 444,318.17           | R\$ 434,249.18           | R\$ 437,412.21           |
| Estimated total rate in USD   |             | <del>\$ 390,566.56</del> | <del>\$ 393,606.00</del> | <del>\$ 393,529.15</del> | <del>\$ 395,341.26</del> | <del>\$ 397,770.21</del> | <del>\$ 387,938.24</del> | <del>\$ 390,205.32</del> |
| Mob, Pre-Op and Commis        |             | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         | \$ 30,000,000.00         |
| Demobilization Rate           |             | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Movement Rate                 |             | 90% operating rate       | 90% operating rate       | 90% operating rate       | 90% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Bad Weather Rate              |             | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Awaiting Rate                 |             | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Repair Rate                   |             | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Force Majeure                 | Day 1-30    | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       | 80% operating rate       |
|                               | Day 31 - 60 | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       | 50% operating rate       |
|                               | Day 61+     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     | Zero                     |
| Docking Grace Period (per yr) |             | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | 6 days at Awaiting Rate  | Exhibit not yet Rec'd    | Exhibit not yet Rec'd    | Exhibit not yet Rec'd    |
| Daily Delay                   | < 180       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       |
| Fines                         | 183 - 365   | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       | 5%                       |
|                               | 366 - 547   | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      |
|                               | > 548       | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      | 10%                      |
| Total Max Fines               |             | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          | 10% of contract          |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 58 of 192

**5.3.2.1 Utilization Bonus**

The charter arrangements give a bonus for high utilization or availability as follows;

- DRU 1 - 7      94 -98 % sliding scale up to 10% maximum
- DRU 8+      92 - 96% sliding scale up to 15% maximum

**5.3.2.2 Non Compliance**

For noncompliance with the obligations of the charter liquidated damages of 20% of the operating fee will be charged per day up to a maximum of 20% of the overall charter fee.

| Days of delay after the date established for operation start-up | Fine per day of delay (% of daily rate) |
|---|---|
| First 180 days  | 5%                                      |
| Between 183 and 355 days  | 10%                                     |
| Between 356 and 547 days  | 15%                                     |
| After 548 days  | 20%                                     |

**5.3.2.3 Termination**

The charter can be terminated as follows

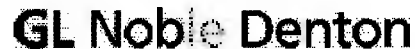
- By either party with 14 days' notice due to a material breach. We are not aware of any charter being terminated under such a condition.
- Force Majeure after a period of 90 continuous days
- Delay in agreement commencement of 730 days

**5.3.3 Services Agreement**

There is a common services agreement which is executed separately for each SPC (vessel) this is a standard Petrobras document used for all vessels / rigs that they engage. All operators selected will be well aware of and will have work to the requirements of this agreement.

See the Services Agreement key points listed below per DRU.





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

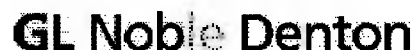
**SERVICES OVERVIEW for DRUs 1 through 14**

| DRU NAME   | DRU 1 - 7<br>Multiple   | DRU 8<br>Urca  | DRU 9<br>Frade                         | DRU 10<br>Brachy                       | DRU 11<br>Portogalo                    | DRU 12<br>Mangaratiba                  | DRU 13<br>Botinas                      | DRU 14<br>Ordina                       |
|--|---|--|--|--|--|--|--|--|
| Op Dayrate, national only (\$R/day)                  | R\$ -   | R\$ 155,058.11                                       | R\$ 157,861.07                         | R\$ 156,285.15                         | R\$ 157,672.88                         | R\$ 157,486.95                         | R\$ 157,590.24                         | R\$ 159,352.11                         |
| Op Dayrate, non-resident (\$R/day)                   | R\$ 211,836.00  | R\$ 38,764.53  | R\$ 39,415.27                          | R\$ 39,066.29                          | R\$ 39,418.22                          | R\$ 39,371.74                          | R\$ 39,397.56                          | R\$ 39,838.03                          |
| Op Dayrate, combined (\$R/day)                       | R\$ 211,836.00  | R\$ 193,822.64                                       | R\$ 197,076.34                         | R\$ 195,391.44                         | R\$ 197,091.10                         | R\$ 196,858.69                         | R\$ 196,987.80                         | R\$ 199,190.14                         |
| Movement Rate  | 90% op rate   | 90% op rate  | 95% op rate                            | 90% op rate                            | 90% op rate                            | 90% op rate                            | 90% op rate                            | 95% op rate                            |
| Bad Weather Rate                                     | 90% op rate   | 95% op rate  | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            |
| Awaiting Rate  | 90% op rate   | 95% op rate  | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            | 95% op rate                            |
| Repair Rate  | Zero  | Zero   | Zero                                   | Zero                                   | Zero                                   | Zero                                   | Zero                                   | Zero                                   |
| Outside of Area Add'l (\$R/day)                      | R\$ 10,000.00   | R\$ 10,000.00  | R\$ 10,000.00                          | R\$ 10,000.00                          | R\$ 10,000.00                          | R\$ 10,000.00                          | R\$ 10,000.00                          | R\$ 10,000.00                          |
| In Equatorial Area Add'l (\$R/day)                   | R\$ 10,000.00   | R\$ 20,000.00  | R\$ 20,000.00                          | R\$ 20,000.00                          | R\$ 20,000.00                          | R\$ 20,000.00                          | R\$ 20,000.00                          | R\$ 20,000.00                          |
| Force Majeure  | Day 1-30<br>Day 31 - 60<br>Day 61+  | 80% op rate<br>50% op rate<br>Zero                   | 80% op rate<br>50% op rate<br>Zero     | 80% op rate<br>50% op rate<br>Zero     | 80% op rate<br>50% op rate<br>Zero     | 80% op rate<br>50% op rate<br>Zero     | 80% op rate<br>50% op rate<br>Zero     | 80% op rate<br>50% op rate<br>Zero     |
| Minimum of National Labor from Commencing Operations | < 180 days<br>End 1st Yr<br>End 2nd Yr<br>End 3rd Yr<br>End 4th Yr<br>End 5th Yr<br>End 6th Yr<br>End 10th Yr | 20%<br>66%<br>70%<br>74%<br>78%<br>82%<br>85%<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% | -<br>-<br>-<br>-<br>-<br>-<br>-<br>85% |
| Local Content of Services                            | End 1st Yr<br>End 2nd Yr<br>End 3rd Yr<br>End 4th Yr  | 66%<br>70%<br>75%<br>80%                             | 66%<br>70%<br>75%<br>80%               | 66%<br>70%<br>75%<br>80%               | 66%<br>70%<br>75%<br>80%               | 66%<br>70%<br>75%<br>80%               | 66%<br>70%<br>75%<br>80%               | 66%<br>70%<br>75%<br>80%               |
| Docking Grace Period (per yr)                        | Exhibit not yet Rec'd   | 6 days at Awaiting Rate                              | 6 days at Awaiting Rate                | 6 days at Awaiting Rate                | 6 days at Awaiting Rate                | 6 days at Awaiting Rate                | 6 days at Awaiting Rate                | Exhibit not yet Rec'd                  |
| Daily Delay  | < 180<br>183 - 365<br>366 - 547<br>> 548  | 5%<br>10%<br>15%<br>20%                              | 5%<br>5%<br>10%<br>10%                 | 5%<br>5%<br>10%<br>10%                 | 5%<br>5%<br>10%<br>10%                 | 5%<br>5%<br>10%<br>10%                 | 5%<br>5%<br>10%<br>10%                 | 5%<br>5%<br>10%<br>10%                 |
| Total Max Fines                                      | 10% of contract   | 10% of contract                                      | 10% of contract                        | 10% of contract                        | 10% of contract                        | 10% of contract                        | 10% of contract                        | 10% of contract                        |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TOD Report Rev 2

Page 60 of 192



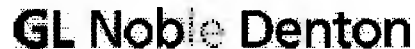
SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### SERVICES OVERVIEW for DRUs 15 through 21

| DRU  | DRU 15                | DRU 16                | DRU 17                | DRU 18                | DRU 19                | DRU 20                  | DRU 21                  |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|
| NAME   | Pituba                | Boipeba               | Interlagos            | Itapema               | Comandatuba           | Guarapari               | Camburi                 |
| Op Dayrate, national only (\$/day)                   | R\$ 159,346.21        | R\$ 159,661.89        | R\$ 159,653.13        | R\$ 155,586.38        | R\$ 156,468.79        | R\$ 153,007.03          | R\$ 154,361.63          |
| Op Dayrate, non-resident (\$/day)                    | R\$ 39,836.55         | R\$ 39,915.50         | R\$ 39,913.28         | R\$ 38,896.59         | R\$ 38,117.20         | R\$ 38,251.76           | R\$ 38,590.41           |
| Op Dayrate, combined (\$/day)                        | R\$ 199,182.76        | R\$ 199,577.49        | R\$ 199,566.41        | R\$ 194,482.97        | R\$ 195,585.99        | R\$ 191,258.79          | R\$ 192,952.04          |
| Movement Rate  | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 90% operating rate      | 90% operating rate      |
| Bad Weather Rate                                     | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate      | 95% operating rate      |
| Awaiting Rate  | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate    | 95% operating rate      | 95% operating rate      |
| Repair Rate  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                    | Zero                    |
| Outside of Area Add'l (\$/day)                       | R\$ 10,000.00         | R\$ 10,000.00         | R\$ 10,000.00         | R\$ 10,000.00         | R\$ 10,000.00         | R\$ 10,000.00           | R\$ 10,000.00           |
| In Equatorial Area Add'l (\$/day)                    | R\$ 20,000.00         | R\$ 20,000.00         | R\$ 20,000.00         | R\$ 20,000.00         | R\$ 20,000.00         | R\$ 20,000.00           | R\$ 20,000.00           |
| Force Majeure  |                       |                       |                       |                       |                       |                         |                         |
| Day 1-30   | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate    | 80% operating rate      | 80% operating rate      |
| Day 31 - 60  | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate    | 50% operating rate      | 50% operating rate      |
| Day 61+  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                  | Zero                    | Zero                    |
| Minimum of National Labor from Commencing Operations |                       |                       |                       |                       |                       |                         |                         |
| < 180 days   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 1st Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 2nd Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 3rd Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 4th Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 5th Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 6th Yr   | -                     | -                     | -                     | -                     | -                     | -                       | -                       |
| End 10th Yr  | 85%                   | 85%                   | 85%                   | 85%                   | 85%                   | 85%                     | 85%                     |
| Local Content of Services                            |                       |                       |                       |                       |                       |                         |                         |
| End 1st Yr   | 66%                   | 66%                   | 66%                   | 66%                   | 66%                   | 66%                     | 66%                     |
| End 2nd Yr   | 70%                   | 70%                   | 70%                   | 70%                   | 70%                   | 70%                     | 70%                     |
| End 3rd Yr   | 75%                   | 75%                   | 75%                   | 75%                   | 75%                   | 75%                     | 75%                     |
| End 4th Yr   | 90%                   | 90%                   | 90%                   | 80%                   | 80%                   | 80%                     | 80%                     |
| Docking Grace Period (per yr)                        | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | Exhibit not yet Rec'd | 5 days at Awaiting Rate | 6 days at Awaiting Rate |
| Daily Delay Fines                                    |                       |                       |                       |                       |                       |                         |                         |
| < 180  | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                      | 5%                      |
| 181 - 365  | 5%                    | 5%                    | 5%                    | 5%                    | 5%                    | 5%                      | 5%                      |
| 366 - 547  | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                     | 10%                     |
| > 548  | 10%                   | 10%                   | 10%                   | 10%                   | 10%                   | 10%                     | 10%                     |
| Total Max Fines                                      | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract       | 10% of contract         | 10% of contract         |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 61 of 192



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### SERVICES OVERVIEW for DRUs 22 through 28

| DRU   | DRU 22                     | DRU 23                     | DRU 24                     | DRU 25                     | DRU 26                   | DRU 27                   | DRU 28                   |
|---|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|
| NAME  | Itaoca                     | Itaunas                    | Siri                       | Sahy                       | Cassino                  | Curumim                  | Salinas                  |
| Op Dayrate, national only (\$/day)                            | R\$ 154,819.07             | R\$ 156,173.67             | R\$ 156,029.06             | R\$ 156,793.42             | R\$ 157,689.44           | R\$ 153,818.61           | R\$ 154,733.48           |
| Op Dayrate, non-resident (\$/day)                             | R\$ 38,704.77              | R\$ 39,043.42              | R\$ 39,007.26              | R\$ 39,198.35              | R\$ 39,424.86            | R\$ 38,454.65            | R\$ 38,683.37            |
| Op Dayrate, combined (\$/day)                                 | R\$ 193,523.84             | R\$ 195,217.09             | R\$ 195,036.32             | R\$ 195,991.77             | R\$ 197,114.30           | R\$ 192,273.26           | R\$ 193,416.85           |
| Movement Rate   | 90% operating rate         | 90% operating rate         | 90% operating rate         | 90% operating rate         | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Bad Weather Rate  | 95% operating rate         | 95% operating rate         | 95% operating rate         | 95% operating rate         | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Awaiting Rate   | 95% operating rate         | 95% operating rate         | 95% operating rate         | 95% operating rate         | 95% operating rate       | 95% operating rate       | 95% operating rate       |
| Repair Rate   | Zero                       | Zero                       | Zero                       | Zero                       | Zero                     | Zero                     | Zero                     |
| Outside of Area Add'l (\$/day)                                | R\$ 10,000.00              | R\$ 10,000.00              | R\$ 10,000.00              | R\$ 10,000.00              | R\$ 10,000.00            | R\$ 10,000.00            | R\$ 10,000.00            |
| In Equatorial Area Add'l (\$/day)                             | R\$ 20,000.00              | R\$ 20,000.00              | R\$ 20,000.00              | R\$ 20,000.00              | R\$ 20,000.00            | R\$ 20,000.00            | R\$ 20,000.00            |
| Force Majeure   | Day 1-30                   | 80% operating rate         | 80% operating rate         | 80% operating rate         | 80% operating rate       | 80% operating rate       | 80% operating rate       |
|   | Day 31 - 60                | 50% operating rate         | 50% operating rate         | 50% operating rate         | 50% operating rate       | 50% operating rate       | 50% operating rate       |
|   | Day 61+                    | Zero                       | Zero                       | Zero                       | Zero                     | Zero                     | Zero                     |
| Minimum of<br>National Labor<br>From Commencing<br>Operations | < 180 days                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 1st Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 2nd Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 3rd Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 4th Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 5th Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
|   | End 6th Yr                 | -                          | -                          | -                          | -                        | -                        | -                        |
| Local Content of<br>Services                                  | End 10th Yr                | 85%                        | 85%                        | 85%                        | 85%                      | 85%                      | 85%                      |
|   | End 1st Yr                 | 66%                        | 66%                        | 66%                        | 66%                      | 66%                      | 66%                      |
|   | End 2nd Yr                 | 70%                        | 70%                        | 70%                        | 70%                      | 70%                      | 70%                      |
|   | End 3rd Yr                 | 75%                        | 75%                        | 75%                        | 75%                      | 75%                      | 75%                      |
|   | End 4th Yr                 | 80%                        | 80%                        | 80%                        | 80%                      | 80%                      | 80%                      |
| Hooking Grace Period (per yr)                                 | 6 days at<br>Awaiting Rate | 6 days at<br>Awaiting Rate | 6 days at<br>Awaiting Rate | 6 days at<br>Awaiting Rate | Exhibit not yet<br>Rec'd | Exhibit not yet<br>Rec'd | Exhibit not yet<br>Rec'd |
| Daily Delay Fines   | < 180                      | 5%                         | 5%                         | 5%                         | 5%                       | 5%                       | 5%                       |
|   | 183 - 365                  | 5%                         | 5%                         | 5%                         | 5%                       | 5%                       | 5%                       |
|   | 366 - 547                  | 10%                        | 10%                        | 10%                        | 10%                      | 10%                      | 10%                      |
| Total Max Fines   | > 548                      | 10%                        | 10%                        | 10%                        | 10%                      | 10%                      | 10%                      |
| Total Max Fines   | 10% of contract            | 10% of contract            | 10% of contract            | 10% of contract            | 10% of contract          | 10% of contract          | 10% of contract          |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TOD Report Rev 2

Page 62 of 192



The Services Agreement terms of DRUs 1 through 7 (3.3.11.2) defines the local labor content going forward. This progressively increases local content over the initial six years of the agreement and will have a significant effect on the OpEx cost if the minimum requirements are adhered to (downward).

| Agreement Term                                   | Minimum % of National Labor |
|--|-----------------------------|
| Until 180 days from the AGREEMENT's Commencement | 20                          |
| Until the end of the first contractual year      | 66                          |
| Until the end of the second contractual year     | 70                          |
| Until the end of the third contractual year      | 74                          |
| Until the end of the fourth contractual year     | 78                          |
| Until the end of the fifth contractual year      | 82                          |
| After the sixth contractual year                 | 85                          |

And in relation to support services for all DRU Service Agreements (3.42.1);

| Agreement Term                          | % of Local Content        |
|---|---------------------------|
| By the end of the first agreement year  | 66 (sixty six percent)    |
| By the end of the second agreement year | 70 (seventy percent)      |
| By the end of the third agreement year  | 75 (seventy five percent) |
| From the fourth contract year           | 80 (eight percent)        |

Petrobras will supply all fuel related to execution of the agreement up to a total of 18,000m<sup>3</sup>/year. This is typically more than sufficient for normal operations and should therefore cover the full cost of fuel.

Prices escalation is governed by set formulae (6.1 & 6.2) depending upon set market indicators.



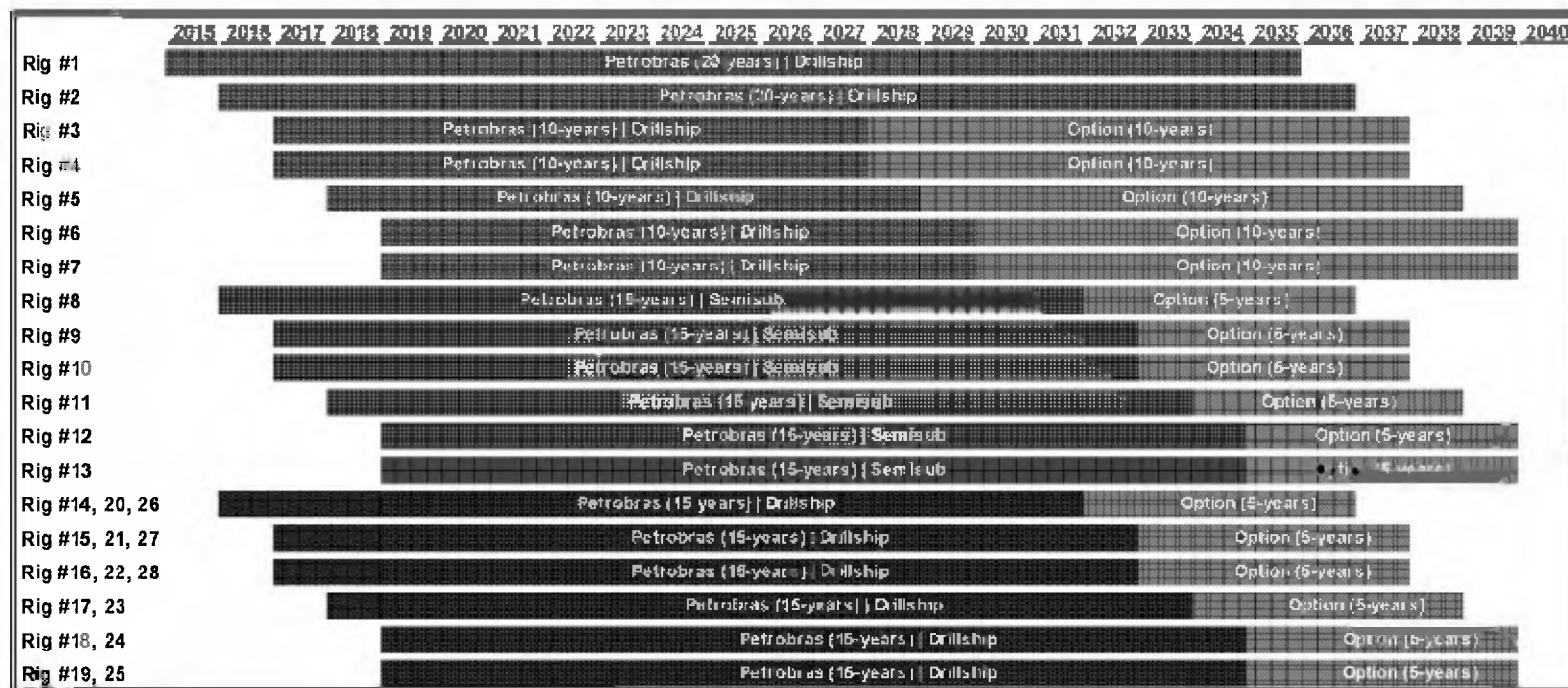
There are penalties for nonconformance with the agreement (9.1.1);

| Days of delay after the date established for operation start-up | Fine per day of delay (% of daily rate) |
|---|---|
| First 182 days  | 5%                                      |
| Between 183 and 365 days  | 10%                                     |
| Between 366 and 547 days  | 15%                                     |
| After 548 days  | 20%                                     |

Petrobras is responsible for a sub-surface spill (14.1.1) but the operator is liable for spills or environmental contamination from the DRU for up to USD\$ 1,000,000.



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW







## **6 BASIC DESIGN**

### **6.1 SETE**

All yards have in place a "Specification Compliance Review" ("SCR"). This is conducted by Petrobras PGSU and required from the Operators, under the Charter Contract and Service Contract. The "SCR" is discussed regularly between PGSU, the Operator, the 3 CMA's and the Yard. A very comprehensive list in form of an Excel matrix which opens up into hundreds of items is used as reference and control.

All shipyards have scheduled specialized reports for HAZOP, Dynamic Positioning and Failure Mode Effect Analysis ("FMEA") for their respective projects.

In the cases of Keppel, Jurong and EAS, where the projects are advanced, such reports were made or are in process. The team of Petrobras and Operator CMA does participate in the discussions.

The Basic and detail design offices in Norway, Holland and Poland are frequently visited by the CMA Petrobras and the Operators. The same applies to the factories of the Drilling and Marine packages and other main equipment.

The majority of the involvement with the Statutory Bodies during design and construction is the responsibility of the shipyard (i.e. the Classification Society, the Harbor, the Health and Safety, the Radio and Communications and the Heliport Authority).

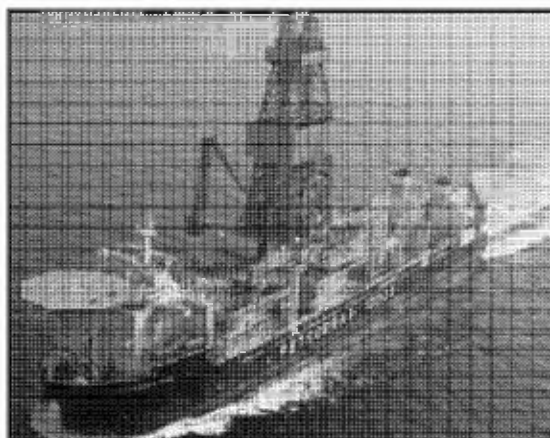
All involvement in order to have each DRU ready for operations is the responsibility of the Operator, in certain cases assisted by the shipyard.

The shipyard has a detailed control record of the weight and CG of each item which goes on board. The CMA makes a regular survey of this record.

In the case of the Semi-Submersible this control is very strict as Variable Deck Load ("VDL") capacity is sensitive to weight change.

### **6.2 ESTALEIRO ATLÂNTICO SUL**

This yard has adopted the LMG design (based on their Navis Explorer 1).

**6.2.1 LMG Marin**

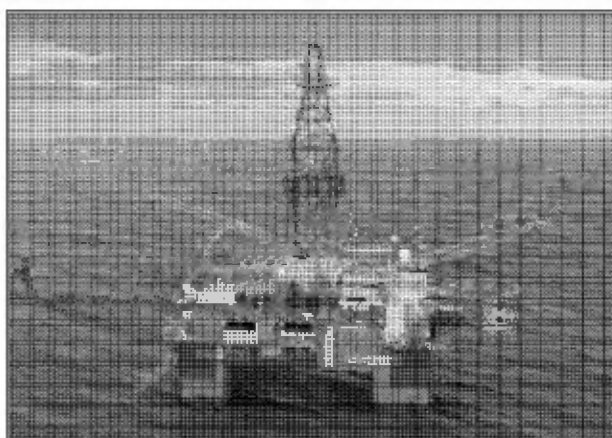
LMG Marin is a reputable, independent designer of drillships, offering services to shipyards and clients worldwide.

Their experience in drillship design combines the many years of experience with the deepwater drillship Navis Explorer 1, and recent drillships harsh environment designs for Statoil and Brazilian shipyards (the latter from the first round of DRU procurement).

The Jurong Espadon design is a development of an original LMG design but Jurong now holds the design ownership of their design and LMG are no longer involved.

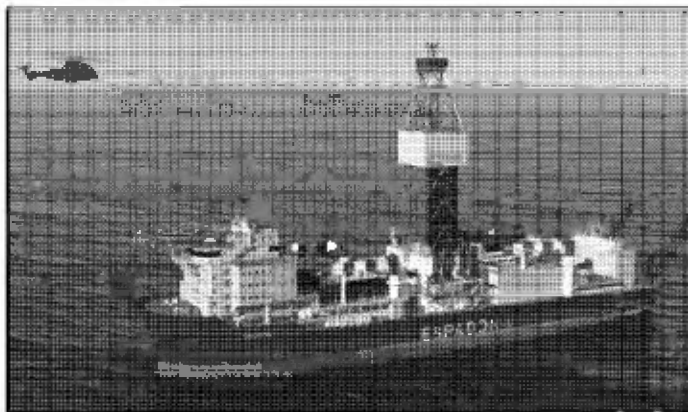
**6.3 BRASFELS**

Keppel will adopt its proprietary DSS 38e design solution for their DRUs. This is a semi-submersible design rather than a Monohull and is based on MSC Gusto's (see 5.6 below) proven DSS series of designs.



**6.4 JURONG BRASIL**

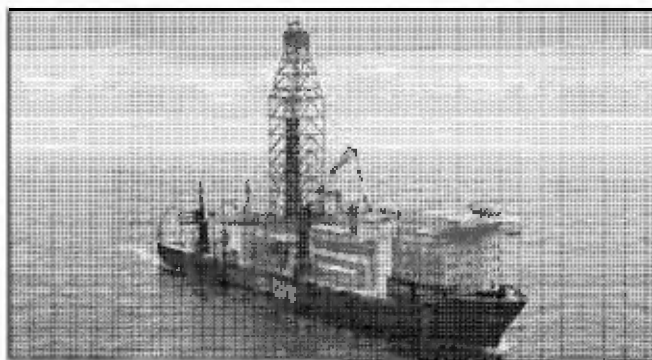
Jurong is adopting its proprietary Espadon Monohull design solution which is a development of a basic LMG Marin design. Jurong reportedly now holds full design rights to the design.

**6.5 ESTALEIRO RIO GRANDE**

The yard has adopted a standard MSC Gusto Q Drill Monohull design solution, see below.

**6.6 ESTALEIRO ENSEADA PARAGUAÇU**

The yard has adopted a standard MSC Gusto Q Drill Monohull design solution, again see below.

**6.6.1 MSC Gusto**

MSC Gusto is one of the leading design and engineering companies involved in all types of mobile units/vessels for the offshore industry, including the delivery of associated equipment.



Their projects are aimed at the offshore exploration, construction and production markets with solutions are centered on all types of jack-up units, semi-submersibles or mono-hull vessels.

In addition to the proprietary designs, they also manufacture and deliver associated equipment such as the jacking systems, fixation systems and X-Y skidding systems for the jack-up units, and the thruster retrieval systems for the DP vessels.

#### **6.6.2 Design Limitations**

Whilst the designs are all proven in the industry they are not at the highest level for harsh environmental operation and are not winterized or Ice Classed. They are therefore suitable for global operations within this envelope but excluding Arctic and ice operations (such as Canada, North Norway and Russia).

In relation to the differences between monohulls and semisubmersibles other than cost there are two main design differences which relate to vessel motions (usually less for a semis but the Espadon designed drillship comes close) and deck capacity (Variable Deck Load VDL) which is smaller for a semi and is one of the critical areas during construction (and probably the main reason for close weight control requirement throughout).

Coupled with the above are the DP requirements which are a more complicated issue but in simplified terms decreased motions reduce DP loading but vessel size increases DP loading. Typically a semi has lower motions but has a smaller torque radius than a drillship. In order for a drillship to combat motions in general it has to be bigger, this also increases the torque requirement (higher DP load) to keep the vessel on station.

**7 CONSTRUCTION YARDS****7.1 GENERAL**

At present the yards Keppel and Jurong are building parts of the hull and out-fitting in Singapore, Indonesia and the Philippines. Currently all construction is broadly on schedule.

EEP will possibly have parts of the hull built in Japan and the yards EAS and Ecovix will have Mega blocks built in China and in other countries.

Where hulls are built outside of Brazil we would recommend that final machining of the thruster mounting rings takes place in Brazil. We have been involved in two projects where the rings have had to be reworked and re-machined upon arrival after a long voyage due to stress relieving movement taking the rings out of tolerance (note these rings require a face to face joint to a tight tolerance).

The CMA Petrobras and the Operators have resident engineers in Singapore and will have residents in the Philippines and Indonesia.

If EEP decides to build the first hull or parts thereof in Japan, there will be also a resident group. China will have one or more resident groups depending on the specific location of construction of Mega blocks, which is still yet to be chosen by the yards.

**7.2 SETE**

The CMA groups in the 5 shipyards, both of Petrobras Engenharia and of the Operators, are in the process of ramping up their personnel. The team is composed of engineers, technicians, inspectors, project managers and specialists in certain fields. Petrobras Engenharia, over the last 40 years, followed up and surveyed over 100 large offshore construction projects and has a large number of experienced and qualified people.

In general, the Petrobras CMA of each shipyard will have approximately 70 to 80 people and the Operator CMA approximately 20 to 25 people. Specialists are common to all yards.

The CMA and the shipyard periodically agree on inspections and supervision actions. In most cases the Classification Society is also a part in the meetings.

The inspections agreed upon are carried-out by the CMA team together with the yard's quality assurance. The Class team has its own inspections schedule.

The yard and the CMA will regularly have weekly progress meetings, and the CMA Site Manager presents a weekly report to the CMA Project Manager. The Project Manager issues a monthly report to the Owners (Sete Brasil and the Operator).

Force Majeure items shall be identified and reported by the affected party within 72 hours of the event. The EPC contract contains these specific procedures.

The Force Majeure shall be agreed upon by the parties and actions shall be taken to minimize the effect on the works. The subject Force Majeure is handled by the Project Manager.

The design approval team and the site team of the CMA Petrobras and Operator are not allowed to request changes which result in Change Orders or delay in the



date of Handover. The procedure to handle Change Orders is described in the Project Control section.

Weekly meetings regarding QA/QC, safety of the project and the personnel take place and are formally recorded and controlled.

The outstanding defects listed at handover will be managed by a Petrobras' Outstanding Items Management Software called SISPEN and will be controlled by the CMA.

### **7.3 ESTALEIRO ATLÂNTICO SUL**

There are obvious historical problems with productivity in this yard (delivery of one Suezmax tanker in 5 years) and this is reflected in the amount of cut and part fabricated steel lying around with general corrosion because the holding primer has expired. Additionally there is no real evidence of quality control having been carried out by all parties involved. The blocks and fabrications seen had only one set of chalk marked defects (which it is assumed was from the Class surveyor).

Currently, the yard is finishing another Suezmax tanker and has started steel cutting on a third. Note that the original owner, Transpetro, ordered 22 vessels from the yard but has since cut this down to ten.

Following negotiations between EAS with Transpetro, Petrobras and Sete Brasil, the decision was made to concentrate on an order book of 10 Suezmax Tankers and 7 Drillships. The Global Execution Plan worked out by IHI and the yard presented a rescheduling of the delivery dates of these tankers and DRU's which was agreed upon by all parties and became the reference for all progress measuring.

The Global Execution Plan established the following key actions:

- To improve construction planning so as to keep construction schedule;
- To implement the accuracy control in hull construction in order to keep schedule and to avoid rework in all stages of the hull construction;
- To implement the advanced outfitting on the blocks in steel workshop and pre-erection area;
- To analyze all facilities in order to eliminate the bottleneck of process in fabrication and assembly shops;
- To train new workers in order to improve the quality skills of manpower;
- To improve the supervision and management level in order to make an effective organization.

Recently, a new management team has been brought into the yard and has recognized the previous shortcomings and has engaged IHI Marine United (now Japan marine United) to advise and improve on the yards process and productivity. This is a 4 year contract and currently they have 28 personnel in the yard and spread out to all departments. Their prime concerns at the moment are staff training and some machinery / equipment will be replaced to improve productivity as detailed above.

The shipyard is actually the largest in South America, but to-date we see no advantages in its size and we consider it too big at the moment for the current throughput.



It is expected that in the near future Japan Marine United will take a 20-30% equity stake in the shipyard (negotiations are ongoing at present).

#### **7.4 BRASFELS**

This is one of the oldest shipyards in Brazil having been chartered by Keppel from the Brazilian company IVI S.A. for a period of 30 + 30 years, in a deal involving also IVI's creditor, the BNDES. The machinery and equipment in the yard is generally dated but productivity and quality is good. This is a very busy yard and is clearly popular with owners for obvious reasons. Probably the main risk to the project in this yard is pressure from concurrent project should they run into difficulties. Due to the yard's present steel throughput capacity and commitment with other orders, parts of the hulls will be built abroad. BrasFELS currently has an expansion program and in time will increase its steel processing capacity.

In order to meet the required delivery schedules Keppel has adopted for part construction outside of Brazil. The pontoons will be subcontracted to Batangas shipyard in the Philippines and column sections by Bintan shipyard in Indonesia.

Keppel FELS are managing the construction of the vessels locally from Singapore as follows;

- Pontoons and column sections from Singapore using yards in Indonesia (upper hull columns) and Philippines (outfitted and mechanically completed pontoons and lower hull column)
- Drill floor and living quarters in Singapore apart from DRU 5 & 6 where drill floor will be fabricated in Brazil
- Remaining completion in Brazil
- DRU 6 will be 60% constructed in Brazil. Pontoon will be supplied as outfitted blocks but not mechanically completed.

On completion all parts will be assembled in Singapore for dry shipment to Brazil.

#### **7.5 JURONG BRAZIL**

##### **7.5.1 Jurong Singapore**

Jurong Singapore is experienced in offshore new building projects include the construction of work-over rigs and ultra-deepwater sixth generation dynamic positioning semi-submersible rigs for the offshore oil & gas industry.

In order to meet the required delivery schedule the first two DRUs are being part built in this shipyard and two steelwork shipyards in Indonesia PT Karimun and Batamec.

The bare hull will be constructed in 201 blocks of which 97 blocks (forward and aft hulls up to 10m level) will be constructed in either Batamec or PT Karimun the remainder (up to 19m level) being constructed in Jurong's main yard in Singapore. The remaining upper deck works is to be completed in Brazil.

PT Karimun mega blocks will be wet towed to Singapore for assembly of the total bare hull then again a wet tow to deliver the assembled bare hull to Brazil.

Sete currently has a team of 6 persons in Singapore who visit the Indonesian yards on a weekly basis to monitor progress and quality. Currently work is being carried out on the first DRU only with steel cutting of the seventh DRU commencing in May 2013.



Currently the shipyard in Brazil is under construction so there is no DRU construction activity.

We do not have major reservations with the quality of work from Jurong in Singapore and the subcontracted yards are their regular contractors.

## **7.6 ESTALEIRO RIO GRANDE SHIPYARD**

The yard is currently carrying out FPSO work primarily for Petrobras and the quality and productivity appears good. This work is being carried out in the ERG1 facility and the intention to construct the drillships will be in the ERG 2 facility which is presently under construction. The steel workshops of ERG-2 are designed for a block production capacity sufficient for the FPSO and DRU construction programs. Blocks for the FPSO's will start on March 2013, whilst Blocks for their first drillship will start on December 2013. Present progress is on schedule.

## **7.7 ESTALEIRO ENSEADA PARAGUAÇU**

Currently a green field site where only civil work is currently being carried out, no DRU construction. Civil works are currently on schedule and the following key milestones have been advised;

- Installation License issued by IBAMA
- Conceptual engineering completed
- Basic engineering close to completion
- Construction activities started
- Earthmoving starting in February 2012
- Civil works started in June 2012
- Steel cutting scheduled for Q4 2013

### **7.7.1 Kawasaki Japan**

In order to meet the required delivery schedule the first DRU is being built in this shipyard but construction is not due to commence until June 2013.

## **8 OFE / BFE PROCUREMENT**

### **8.1 GENERAL**

Local Brazilian content will comply with the regulations of the Brazilian National Agency for petroleum, Natural Gas & Biofuels (ANP Resolution No 36 dated 13 November 2007). This is monitored under contract by ABS as an accredited authority and initial reports for all yards and DRUs have been produced by ABS Consulting confirming compliance.

All of the equipment related to the construction of the DRUs will be BFE equipment. The only items of Owner Furnished Equipment ("OFE") will relate to operations, drill pipe and risers with some other sundry items. It is understood that this equipment is be provided by the operators and has been included in the CapEx budget.

Petrobras will supply at no cost certain material and equipment to be placed on board as auxiliaries of the operation.

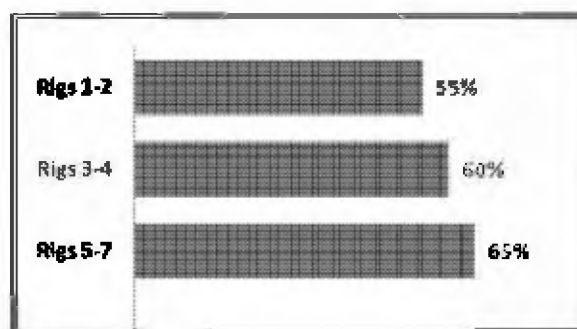
The Operator, under the CMA Operator contract, will provide a resident surveyor at the Drilling Package Manufacturer. This will be complemented by spot visits of the CMA Petrobras.

The Marine Package and other main equipment will be surveyed by the CMA Petrobras and Operator via regular visits.

### **8.2 SETE**

The projects are proceeding on the basis of no major OFE items in relation to construction of the DRUs. This greatly reduces the tri-partite technical risk as it minimizes potential guarantee / defect dispute and commissioning risk. Sete therefore only have a single point of recourse in relation to equipment (the shipyard concerned) and is not trapped between the shipyard and the manufacturer in settling ant dispute / defect.

There is a requirement for global local content on a progressive basis for all of the DRUs and the list per yard is seen below;



The CMA's standard procedure to survey and approve the Inquiry Specifications and the technical proposals before the actual procurement negotiations are conducted by the yard. Furthermore, according to Item 19-SUBCONTRACTING-

of the EPC contract, Sete has the right to approve the yard's selected manufacturers of the equipment listed.

The procurement directive included as an exhibit to the EPC contract has set criteria for the following;

- a) Purchasing
- b) Expediting
- c) Inspection
- d) Packaging and Transportation
- e) Customs Clearance
- f) Delivery of Materials
- g) Information Systems
- h) Inventory Control
- i) Documentation
- j) Technical Assistance
- k) Warranty

This is a comprehensive list covering all the expected requirements with the exception of HSE requirements which are normally specifically mentioned.

### **8.3 DRILLING EQUIPMENT SUPPLIERS**

Both key suppliers provided integrated drilling solutions that provide a full drilling system and backup. They are considered to be the leading two integrated drilling package suppliers globally.

#### **8.3.1 National Oilwell Varco**

National Oilwell Varco ("NOV"), established in 1841, is a well-known worldwide leader in providing major mechanical components for land and offshore drilling rigs, complete land drilling and well servicing rigs, tubular inspection and internal tubular coatings, drill string equipment, extensive lifting and handling equipment, and a broad offering of down hole drilling motors, bits and tools. NOV also provides supply chain services through its network of distribution service centers located near major drilling and production activity worldwide.

NOV provides integrated drilling systems that utilize comprehensive equipment offerings. Drilling solutions are supported by Life Cycle Management ("LCM") that includes a worldwide network of e-business solutions, spare parts distribution systems, and strategically located repair and service facilities.

The NOV contracts will be through their Norwegian entity and those in place with the USA entity will be assigned to the Norwegian entity.

#### **8.3.2 Aker Solutions**

Aker has over 40 years of extensive experience from offshore drilling units (Aker H-6e drilling semi-submersible) and complete drilling rig packages. Aker is a key supplier to the drillships current under construction in Daewoo, Korea. Until purchase by Aker it was previously it was known under the name of Maritime Hydraulics.

Aker Solutions is building a new multi-purpose service site for its drilling equipment business in Brazil, significantly expanding its capacity to serve the country's fast-growing drilling market. The \$100 million development will also include substantial production, assembly and testing capacity, to provide local content to support the country's large drilling rig-building program.

The 335,000m<sup>2</sup> facility in Macaé on Brazil's east coast is about 8 times bigger than Aker Solutions' current facility in nearby Rio das Ostras, reflecting expected growth in the company's activities in the country.

The new Macaé facility will host full drilling riser production and maintenance services. This includes about 20,000m<sup>2</sup> of indoor mechanical workshop space for riser and topside equipment, with full crane and testing capabilities.

The total investment is about \$100 million. The site will have capacity for about 700 employees.

## 8.4 DP SYSTEM SUPPLIERS

### 8.4.1 General Electric

The Dynamic Positioning ("DP") system selected throughout is DP3 (see definition below) which is the highest notation available and as expected for current vessels of this type.

| Description   | IMO      | Corresponding Class Notations |          |           |
|---|----------|-------------------------------|----------|-----------|
|   | DP Class | ABS                           | LRS      | DNV       |
| Automatic and manual position and heading control under specified maximum environmental conditions, during and following any single fault including loss of a compartment due to fire or flood. At least two independent computer systems with a separate back-up system separated by A60 class division. | Class 3  | DPS-3                         | DP (AAA) | DNV-AUTRO |

The two companies below have been selected for the DRUs with the Converteam system being used by all but one shipyard.

Converteam is an engineering company providing customized solutions and systems converting electrical energy into productive performance.

Converteam's own solutions and products include systems for:

- Power generation
- Electric propulsion
- Vessel control systems ("VCS")

- Dynamic position control systems ("DPS")

Converteam has been involved with DP technology for more than 30 years. During this time, more than 700 dynamic positioning systems have been installed on a range of vessels and applications worldwide, enabling customers to profit from Converteam's wealth of expert knowledge and experience.

Converteam has facilities in more than 17 countries and confirms a worldwide positioning, with sales in more than 75 countries around the globe. The Group first established in Europe (France, Germany and the UK) and then in North America. It is now also present in Brazil, China, India, Korea, Singapore, Russia, Middle East, North Africa and the Nordic region. The company can thus call on skills or resources from any other Converteam entity as needed in order to implement an original engineering approach worldwide.

Converteam's Dynamic Positioning System offering originated as a standalone system and has evolved into an integrated bridge application. The Dynamic Positioning system can be integrated with the following equipment;

- Vessel Control
- Position Measurement
- Navigation & Communications and Manual Thruster Control systems.

Converteam's system has been selected by the various yards for the majority of the DRUs. This is due to the fact that their system provides an integrated Power + DP solution, whereas other suppliers do not. Thus from a yard's perspective there is less integration risk in the GE product. The more experienced yards (Keppel and Jurong) have more know-how and can assume the integration risk given their experience. The system is also usually significantly cheaper than a Kongsberg system.

#### **8.4.2 Kongsberg Maritime**

Kongsberg Gruppen ("Kongsberg") is an international, knowledge-based group that supplies high-technology systems and solutions to customers in the oil and gas industry, merchant marine, defense, and aerospace industries;

- Kongsberg Maritime
- Kongsberg Oil & Gas Technologies
- Kongsberg Defense Systems
- Kongsberg Protech Systems

Kongsberg Maritime offers a full range of dynamic positioning systems with more than 30 years of experience from close to 1500 DP systems in operation.

The system designs offered are;

- Stand-alone dynamic positioning systems interface with other systems, such as power plant and thrusters, via conventional signal cables and serial lines.
- Integrated dynamic positioning systems communicate with other systems such as K-Chief (Marine Automation) and K-Thrust (Thruster Control) via a dual Ethernet LAN.



It is probably considered the leading supplier globally for this type of system for DRUs.

#### **8.4.3 Supplier Summary**

Probably the key difference between the companies is that Converteam is a General Electric company and therefore has in house electrical equipment in addition to the DP control system itself whereas Kongsberg is primarily a control system supplier who has experience interfacing across a broad range of equipment from other electrical equipment suppliers (such as Siemens and ABB).

#### **8.5 SPARE GEAR**

The arrangements for strategic and general spares has yet to be agreed between Sete and the Operators regarding handling and location of during operations is done at the Operators facilities and warehouses.

The EPC contract calls for one year's manufacturers' spare to be included in the initial purchase (in practice this is the minimal amount of spares to require).

#### **8.6 COMMONALITY**

In order to minimize operational costs and maintain utilization levels it is common to adopt an equipment commonality regime across a fleet.

In this case, as the DRU's are built under EPC contracts, the selection of equipment manufacturers is done exclusively by the shipyard.

All units of a given yard must be identical. Furthermore the EPC contract, Exhibit II (General Technical Description), Annex 1, contains a List of Specific Items and Equipment Subject to Procurement Approval. These are main equipment where Sete and Petrobras have the right of approval. In this way a certain degree of commonality between the 5 yards is assured, as the number of approved manufacturers is limited.

#### **8.7 OFE**

The only OFE or third party equipment to be 'free Issued' relates to operational items and a typical list is given below (this arrangement is common to this type of project);

| OWNER FURNISHED EQUIPMENT |   |
|---------------------------|---|
| 1                         | Drill Pipes, Drill Collars and Heavy Weight |
| 2                         | Casings and Liners                          |
| 3                         | Completion Risers                           |
| 4                         | Fishing Tools                               |
| 5                         | Subs and lift subs                          |
| 6                         | Manual Elevators and Manual Spiders         |
| 7                         | Downhole Drilling Tools                     |
| 8                         | Stabilizers                                 |



|    |   |
|----|---|
| 9  | Manual Slips  |
| 10 | Running, Handling and Testing Tools, except for Risers Running and Handling Tools (Builder Furnished Equipment) |
| 11 | Inside BOP and saver subs for each specific drill pipe connections  |
| 12 | Column safety valves  |
| 13 | Kill subs Box-Pin   |

| THIRD PARTY FURNISHED EQUIPMENT |  |
|---------------------------------|--|
| 1                               | Specific equipment for directional drilling  |
| 2                               | Landing tools, accessories for wellhead and Blowout preventer assembly tests             |
| 3                               | BOP bulls eye level indicators.  |
| 4                               | Remote Operation Vehicle (ROV)   |
| 5                               | Cement Unit (Electrical), Cement Surge Tank, and Cement mixing and re-circulating system |
| 6                               | Burner, Separator, Heat Exchanger and Gauge Tank for well test                           |
| 7                               | Logging Unit and Geology/Mud Logging Cabin   |
| 8                               | MWD / LWD Unit   |
| 9                               | Drill Pipe Riser System  |
| 10                              | Cutting Dryer  |
| 11                              | Fluid Service Operations   |
| 12                              | Gravel and Acidification Operations, including its chucks and hoses                      |

**9 PLANNING / SCHEDULE****9.1 SETE**

The shipyards are contracted by Sete to formally advise on progress of the construction of the DRUs only via the usual planned / actual S Curve process. They do not however have any such formal requirement on civil works progress either for the yard construction or expansion. Given the importance of having the yards concerned completed prior to the commencement of construction in order to maintain the delivery dates some form of progress monitoring / reporting should be instigated.

Current reported status of the various projects to date is;

| Shipyard                    | Planned % | Actual % |
|-----------------------------|-----------|----------|
| Estaleiro Atlântico de Sul  | 2.1       | 2.1      |
| BrasFELS                    | 1.6       | 3.4      |
| Estaleiro Rio Grande 2      | 1.1       | 1.1      |
| Jurong Brazil               | 1.7       | 1.7      |
| Estaleiro Enseada Paraguaçu | 1.8       | 1.2      |

Primarily this relates to detailed engineering progress with minor levels of steel cutting.

Each EPC contract details a contractual project schedule detailing an overall construction period and in addition there is a requirement to escalate the works if progress is delayed. For example for DRU 1 the contractual construction period is 1800 days with an escalation of the works if a delay of 60 days is experienced. Additionally, the yard has 365 days to commence fabrication, 610 days to commence erection and 1440 days to handover from the formal notice to proceed.

All of the schedules seen to date are to Level 1 basis and these all need to be developed into Level 3 / 4 (and should be integrated with subcontractor and supplier output) as the detailed engineering and procurement is completed. A summary of the various basic planning levels are;

- Level 1 - Project planning
- Level 2 - System planning
- Level 3 - Discipline planning
- Level 4 - Activity planning

The EPC contract includes a directive for planning control which calls for the following arrangements to be carried out.

The contractor shall constitute, together with the owner, a Steering Committee, composed by Owner Representatives, Contractor Top Management and main Subcontractor's Top Management. This Committee will be responsible for the Contract Performance Evaluation and its alignment with contracted conditions and objectives. The Steering Committee shall also be responsible for supervision of the Planning and Control Minimum Requirements implementation, together with the Owner Representatives, Contractor's Senior Planning Manager and main Subcontractor's Top Planning Manager.

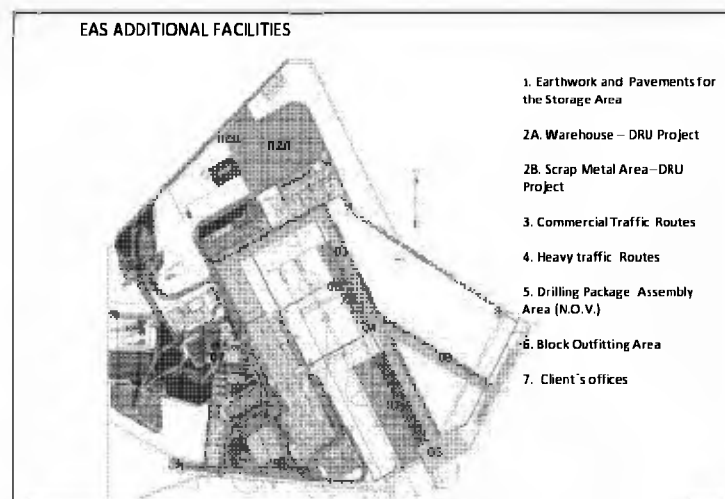
Milestones dates, Work Breakdown Structure ("WBS"), Organizational breakdown structure ("OBS"), Resource Breakdown Structure ("RBS"), Planning and Control documents, forms, methods, procedures will be made by concern of the Steering Committee or specific Planning and Control groups, which will be created by and subordinated to this Steering Committee, for deliberate about specifics definition or decision about Planning and Control cases.

Coordination Meeting – as minimum, monthly coordination meetings shall be scheduled in order to analyze the services progress. Contractor's Project Manager and Owner's Representatives must attend such meetings, besides other people involved with the job activities to be discussed in those meetings.

## 9.2 ESTALEIRO ATLÂNTICO SUL

The only civil works envisaged for this shipyard in order to handle the drillship project is the construction of additional warehousing and the completion of roadways for block transportation around the facility.

The yard is using Synchrony and Primavera planning software although presently it does not have the risk module for the latter.



GL Noble Denton



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW



Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 82 of 192

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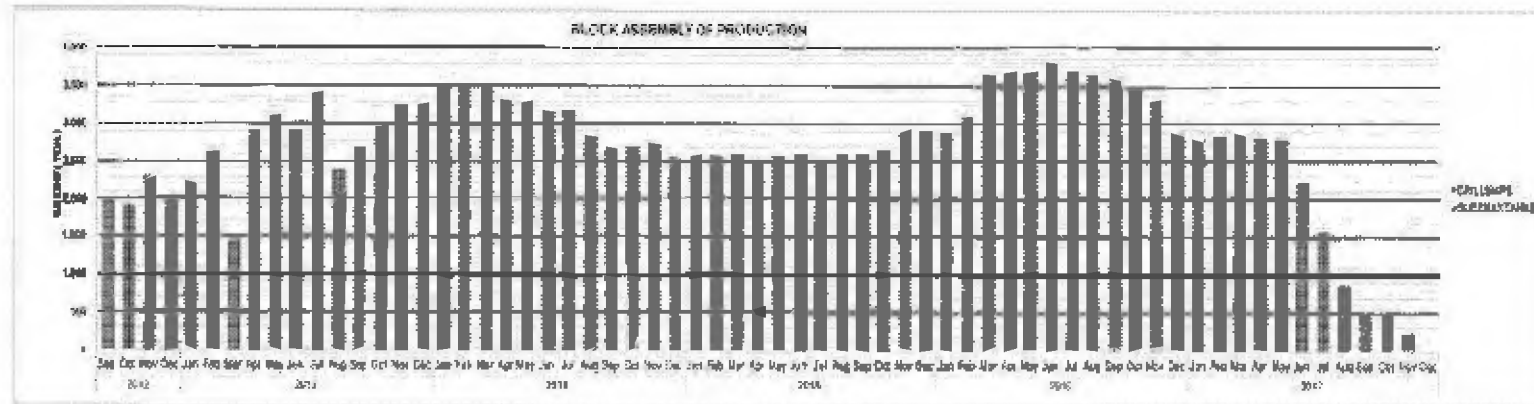


GL Noble Denton

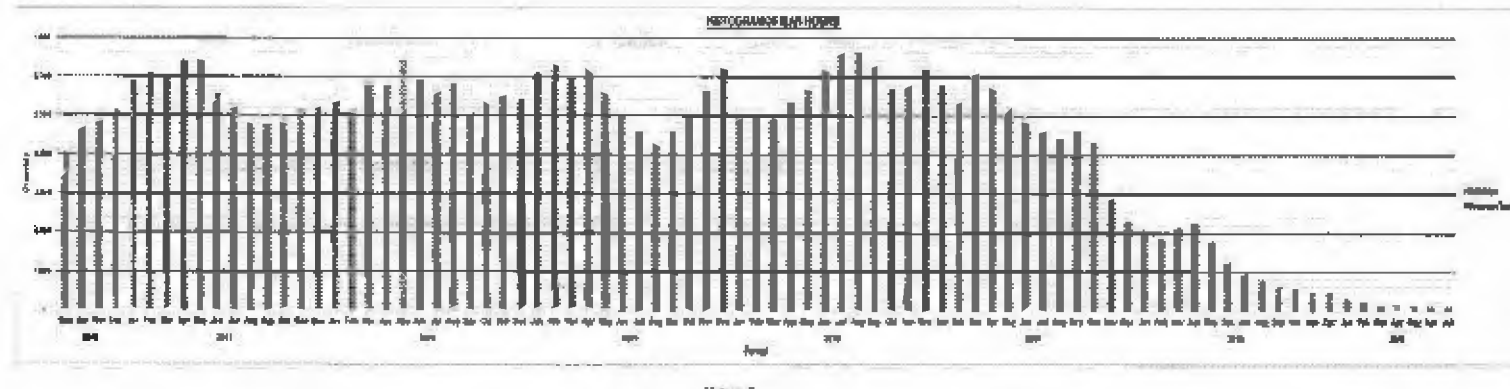


SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### Block Assembly Capacity Requirements



### Manhour Capacity Requirements



Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 83 of 192

Confidential

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**9.3 BRASFELS**

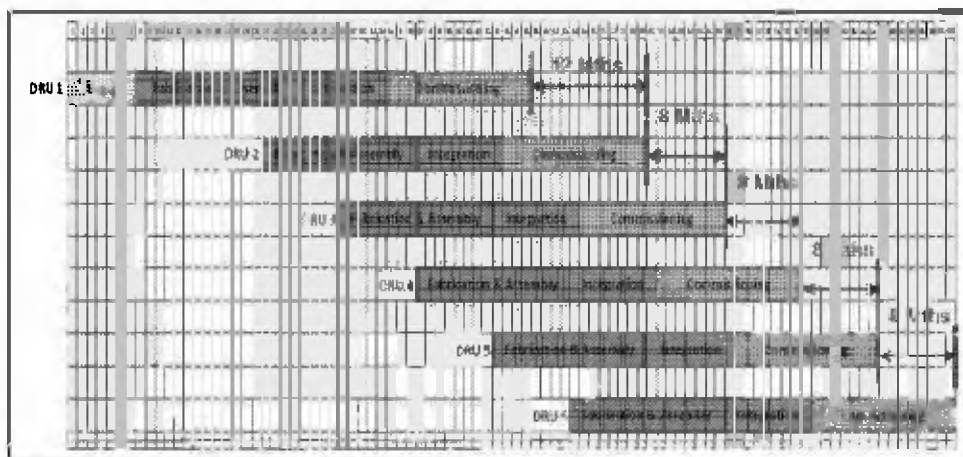
The work envisaged work is to be split between BrasFELS and Keppel FELS

BrasFELS will be responsible for;

- Construction Engineering
- Procurement of local bulk materials, supporting Brazilian equipment purchase and warehousing
- Construction of upper hull deck box and miscellaneous structure
- Integration of the lower hull and lower hull to upper hull
- Pre commissioning and commissioning
- Local content servicing

Keppel FELS will be responsible for;

- Basic and detailed engineering
- Procurement of local bulk materials and entire procurement process
- Fabrication of lower hull components, drill floor and living quarters



|   | Rig No 2  | Rig No 3  | Rig No 4  | Rig No 5  | Rig No 6  |
|---|-----------|-----------|-----------|-----------|-----------|
| Contract Award                            | 22-Mar-12 | 22-Mar-12 | 22-Mar-12 | 22-Mar-12 | 22-Mar-12 |
| Lower Hull Strike Steel                   | 22-Sep-13 | 22-May-14 | 22-Jan-15 | 22-Sep-15 | 22-May-16 |
| Keel Lay - Lower Hull                     | 22-Dec-13 | 22-Aug-14 | 22-Apr-15 | 22-Dec-15 | 22-Aug-16 |
| Upper Hull Strike Steel                   | 22-Jan-14 | 22-Sep-14 | 22-May-15 | 22-Jan-16 | 22-Sep-16 |
| Start Panel Assembly of BLK 31/22S        | 22-Mar-14 | 22-Nov-14 | 22-Jul-15 | 22-Mar-16 | 22-Nov-16 |
| Undocking of Pontoon                      | 22-Aug-14 | 22-Apr-15 | 22-Dec-15 | 22-Aug-16 | 22-Apr-17 |
| Start Lower Hull Consolidation            | 22-Dec-14 | 22-Aug-15 | 22-Apr-16 | 22-Dec-16 | 22-Aug-17 |
| Lifting of Megablock 32S/31S for Erection | 22-Mar-15 | 22-Nov-15 | 22-Jul-16 | 22-Mar-17 | 22-Nov-17 |
| Lifting of DF Substructure for Erection   | 22-Jul-15 | 22-Mar-16 | 22-Nov-16 | 22-Jul-17 | 22-Mar-18 |
| Start Engine Load Test                    | 22-Nov-15 | 22-Jul-16 | 22-Mar-17 | 22-Nov-17 | 22-Jul-18 |
| Startup Drawworks                         | 22-Apr-16 | 22-Dec-16 | 22-Aug-17 | 22-Apr-18 | 22-Dec-18 |
| Leave for Anchorage                       | 22-Sep-16 | 22-May-17 | 22-Jan-18 | 22-Sep-18 | 22-May-19 |
| Delivery                                  | 21-Dec-16 | 21-Aug-17 | 21-Apr-18 | 21-Dec-18 | 21-Aug-19 |

| Rig No 1   | Plan      | Actual    |
|--|-----------|-----------|
| Contract Award                                   | 16-Dec-11 | 16-Dec-11 |
| Upper Hull Strike Steel                          | 16-Jul-12 | 13-Jul-12 |
| Lower Hull Strike Steel                          | 16-Sep-12 | 19-Jul-12 |
| Keel Lay - Lower Hull                            | 16-Dec-12 |           |
| Install 1st Engine                               | 16-Jun-13 |           |
| Undocking of Pontoon                             | 16-Sep-13 |           |
| Start Lower Hull Consolidation                   | 16-Dec-13 |           |
| Lifting of Megablock 32S/31S for Erection        | 16-Mar-14 |           |
| Lifting of Drill Floor Substructure for Erection | 16-Jul-14 |           |
| Start Engine Load Test                           | 16-Nov-14 |           |
| Startup Drawworks                                | 16-Mar-15 |           |
| Leave for Anchorage                              | 16-Sep-15 |           |
| Delivery   | 15-Dec-15 |           |

#### 9.4 JURONG BRAZIL

This yard is a green field site to total works to complete the drillships includes all civil works.

Key milestones for the DRUs are (note No. 1 & 7 are currently being constructed by Jurong in Singapore);

| Description               | DRU 1<br>71-3068 | DRU 7<br>71-3084 | DRU 2<br>71-3077 | DRU 3<br>71-3079 | DRU 4<br>71-3080 | DRU 5<br>71-3081 | DRU 6<br>71-3082 |
|---------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Commencement (L/C signed) | 18-Dec-11        | 20-Jul-12        | 20-Jan-12        | 20-Mar-12        | 20-Mar-12        | 20-Mar-12        | 20-Mar-12        |
| Contract Signed           | 1-Aug-12         | 28-Mar-12        | 1-Mar-12         | 1-Aug-12         | 1-Aug-12         | 1-Aug-12         | 1-Aug-12         |
| Strike Steel              | 5-Oct-11         | 16-Aug-13        | 16-Feb-13        | 13-Oct-14        | 13-Jun-15        | 12-Feb-15        | 13-Oct-15        |
| Keel Laying               | 28-Dec-11        | 19-Feb-14        | 14-Dec-14        | 1-Aug-15         | 1-Apr-16         | 1-Dec-15         | 1-Aug-17         |
| Tow to Brazil (Commence)  | 1-Oct-13         | 16-Jun-14        | -                | -                | -                | -                | -                |
| LQ Heavy Lift             | 1-Aug-14         | 19-May-15        | 18-Oct-15        | 1-May-16         | 1-Jun-17         | 1-Sep-17         | 1-May-18         |
| Drillfloor Heavy Lift     | 1-Apr-15         | 2-Jun-15         | 1-Nov-15         | 14-May-16        | 16-Jan-17        | 18-Sep-17        | 19-May-18        |
| Derrick Start Assembly    | 1-Jun-14         | 16-Apr-14        | 1-May-13         | 2-Jan-14         | 5-Sep-14         | 1-Aug-17         | 1-Jun-18         |
| Derrick Start Heavy Lift  | 1-May-14         | 14-Jul-16        | 1-Dec-15         | 1-Aug-16         | 1-Apr-17         | 1-Dec-17         | 1-Aug-18         |
| MC Start                  | 15-Mar-14        | 1-May-15         | 1-Oct-15         | 1-Jun-15         | 1-Sep-17         | 1-Sep-17         | 1-Jun-18         |
| Engine Start Up           | 15-Oct-14        | 1-Dec-15         | 1-May-16         | 2-Jun-17         | 1-Sep-17         | 1-May-18         | 2-Jun-18         |
| Commissioning Start       | 15-Dec-14        | 20-Dec-15        | 2-May-16         | 3-Jun-17         | 2-Sep-17         | 2-May-18         | 3-Jun-18         |
| LQ Handover               | 15-Mar-15        | 1-May-15         | 30-Sep-15        | 31-May-17        | 31-Jun-18        | 30-Sep-18        | 31-May-19        |
| Thruster Installation     | 16-Apr-15        | 20-May-16        | 1-Mar-16         | 7-Jul-17         | 1-Mar-18         | 1-Mar-18         | 1-Jun-19         |
| Sea Trial                 | 15-May-15        | 20-Jun-16        | 1-Dec-15         | 1-Aug-17         | 1-Apr-18         | 1-Dec-18         | 1-Aug-19         |
| Handover                  | 16-Jun-15        | 21-Jun-15        | 28-Mar-16        | 28-Aug-17        | 28-Apr-18        | 28-Dec-18        | 28-May-19        |

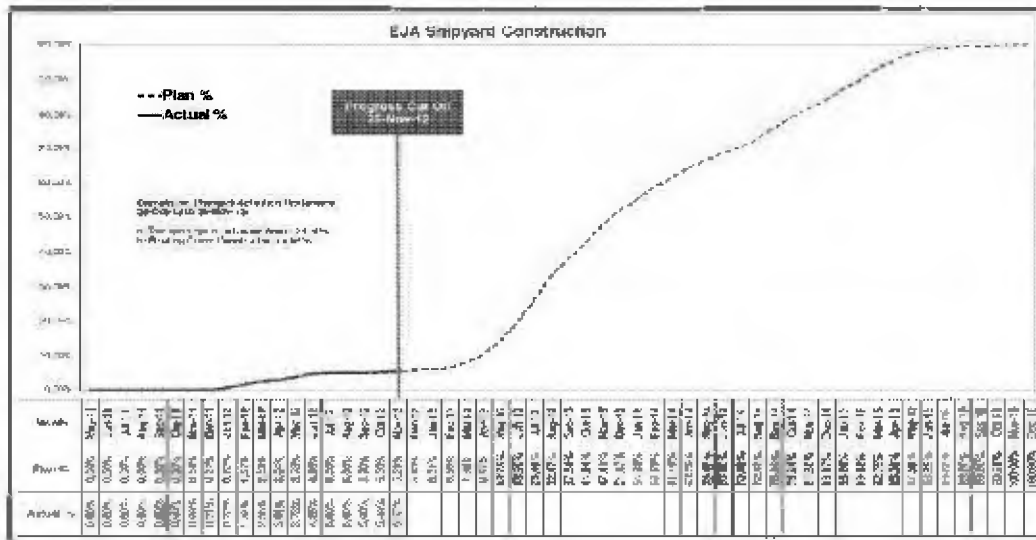
Current DRU progress of 1.7% shown above is detailed as;

| Description           | Plan % | Actual % | Variance Group<br>Individual | Weightage | Plan Weighted | Actual Weighted | Variance<br>Weighted |
|-----------------------|--------|----------|------------------------------|-----------|---------------|-----------------|----------------------|
| Engineering           | 50.57  | 60.22    | 1.65                         | 8.00      | 4.05          | 4.81            | 0.76                 |
| Procurement           | 33.20  | 30.00    | 3.41                         | 25.00     | 8.30          | 7.50            | 0.80                 |
| Construction          | 17.96  | 16.53    | 1.27                         | 57.00     | 10.19         | 9.62            | 0.57                 |
| Mechanical Completion | 0.00   | 0.00     | 0.00                         | 3.00      | 0.00          | 0.00            | 0.00                 |
| Commissioning         | 0.00   | 0.00     | 0.00                         | 9.00      | 0.00          | 0.00            | 0.00                 |
| Overall               |        |          |                              | 100.00    | 20.54         | 21.93           | 1.39                 |

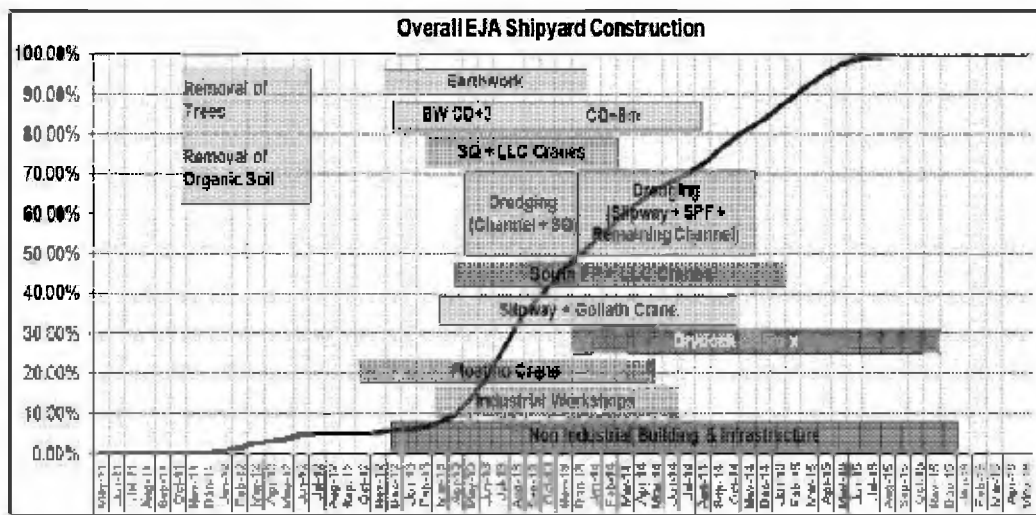
In comparison key milestone dates for the EJA shipyard construction in Brazil are;

| Milestones                                      | Date      |
|---|-----------|
| South / East Breakwater CD+3m                   | 31-Aug-13 |
| Assembly Area 1                                 | 30-Sep-13 |
| Assembly Area 2                                 | 15-Oct-13 |
| Half Fabrication Complex                        | 31-Dec-13 |
| Dredging -7m Channel & SQ -13m                  | 15-Dec-13 |
| South Quay                                      | 15-Dec-13 |
| Project Office / Changing Room & Locker / Crane | 31-Dec-13 |
| Floating Crane                                  | 15-May-14 |
| Dredging South TP -9m                           | 15-Jun-14 |
| Slipway   | 31-Aug-14 |
| South Finger Pier                               | 30-Nov-14 |

Current status of the civil works show the schedule is on target but only 5.7% complete so it is still at an early stage.

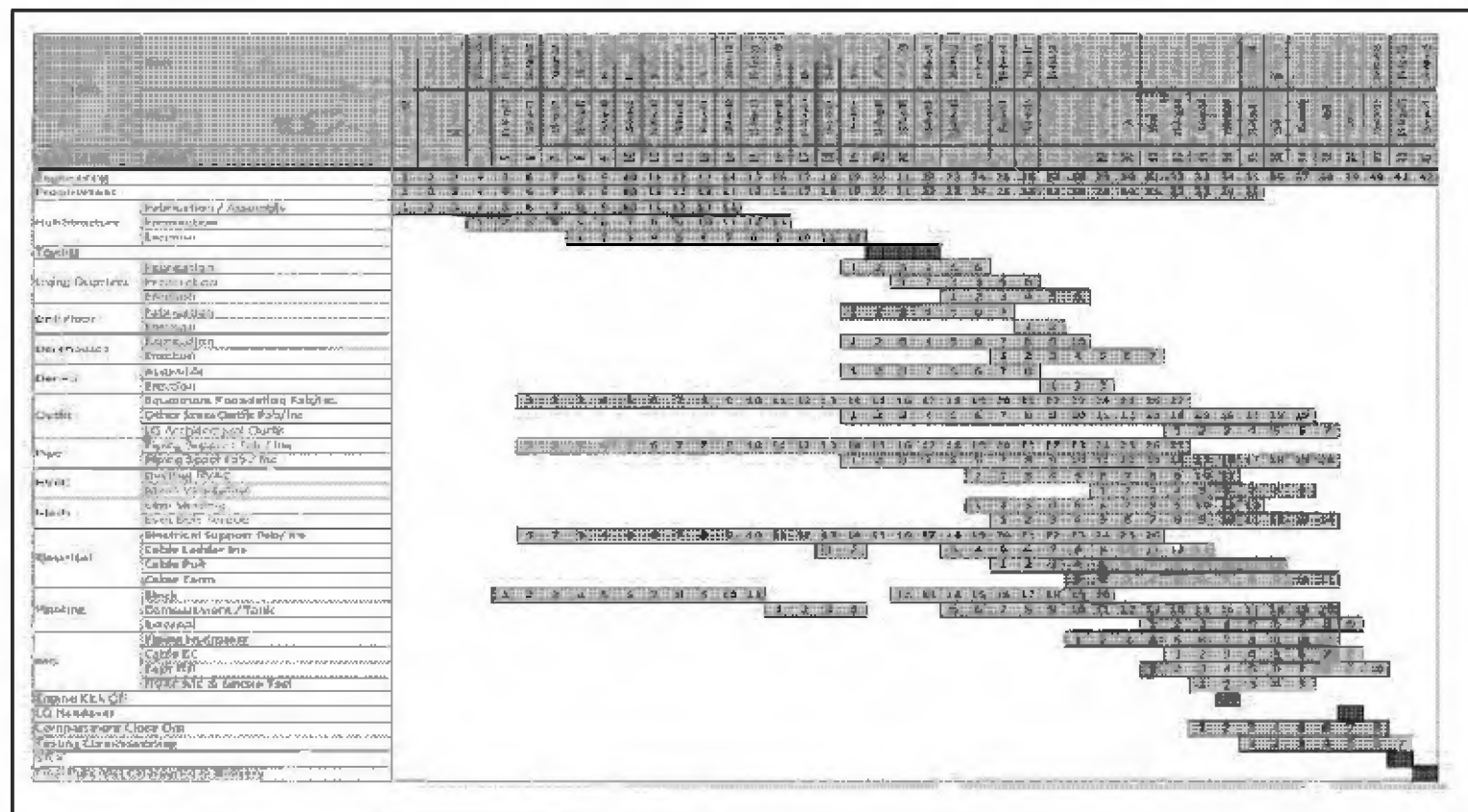


The civil works are expected to be 50% complete by the time DRU 1 is due to arrive (January 2014).



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SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW



Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 88 of 192

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**9.5 ESTALEIRO RIO GRANDE SHIPYARD****Shipyard Milestones**

- ERG 2 Phase 1: Operation -> 30/May/2013;
- ERG Phase 2: Operation -> 28/Feb/2014;
- GABs (3,4 and 5): 31/Jan/2013;
- Erection area: 31/Jan/2014
- Quay: Dec/2014

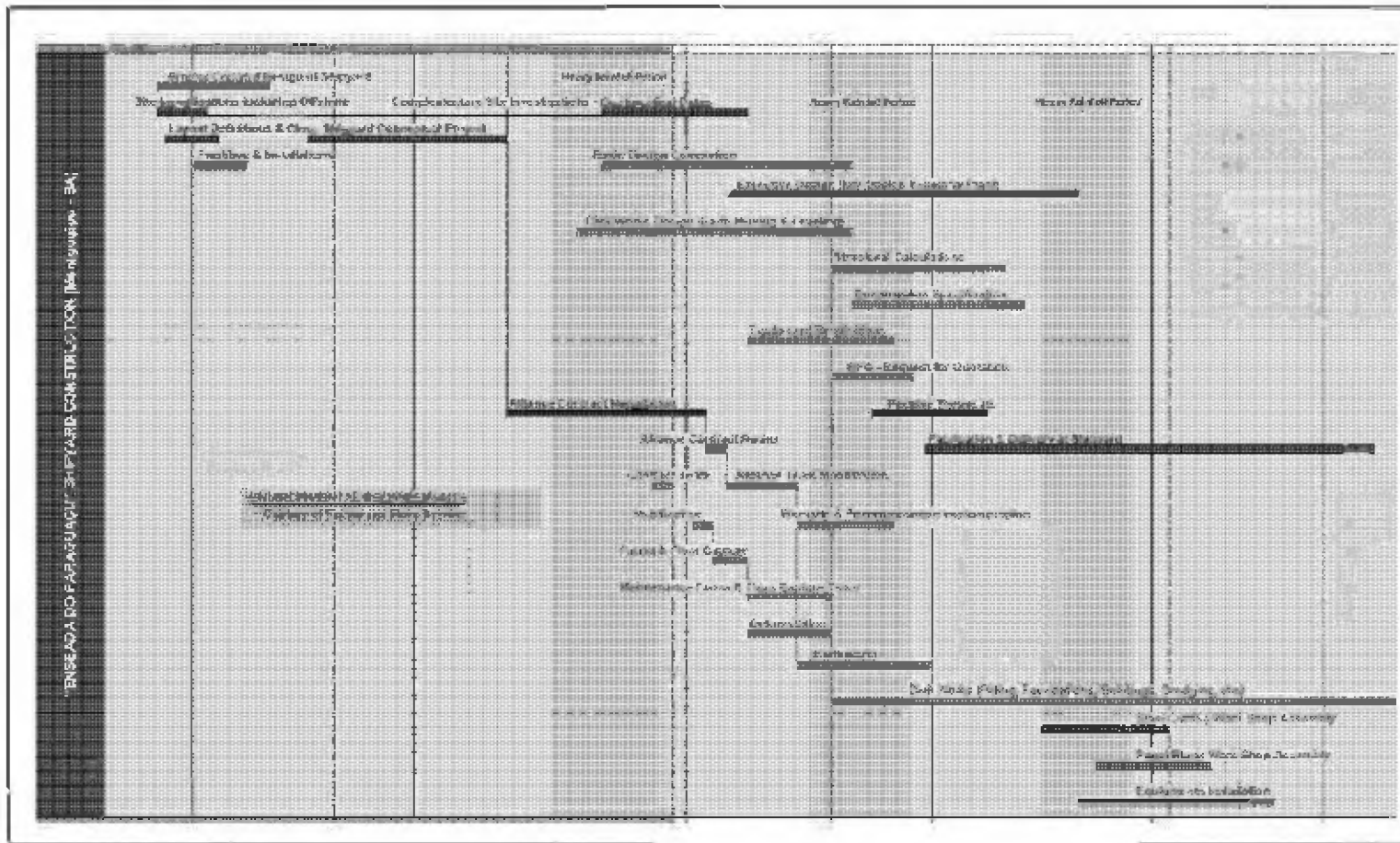
**Construction/Assembly Milestones – CASSINO**

- Start of Fabrication : Dec/2013;
- Start Flat Blocks Assembling : Jan/2014;
- Start Assembling Special Blocks : Mar/2014;
- Erection (keel laying): May/2014;
- Load-out: Jul/2015.





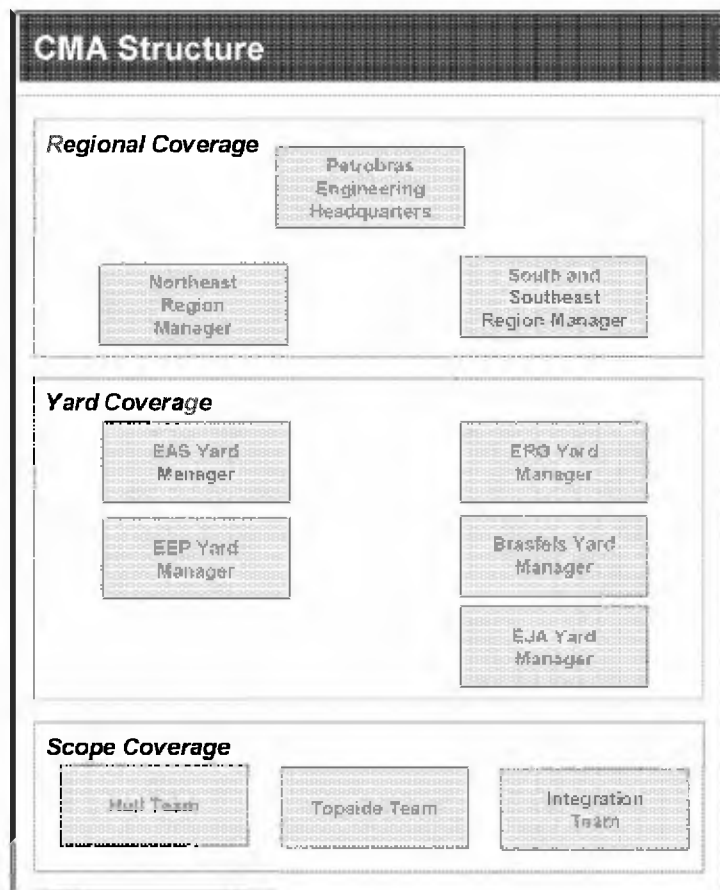
## 9.6 ESTALEIRO ENSEADA PARAGUAÇU



Page 90 of 192

**10 PROJECT CONTROL****10.1 GENERAL**

Sete has set up the following project control regime under a Construction Management Agreement (CMA).

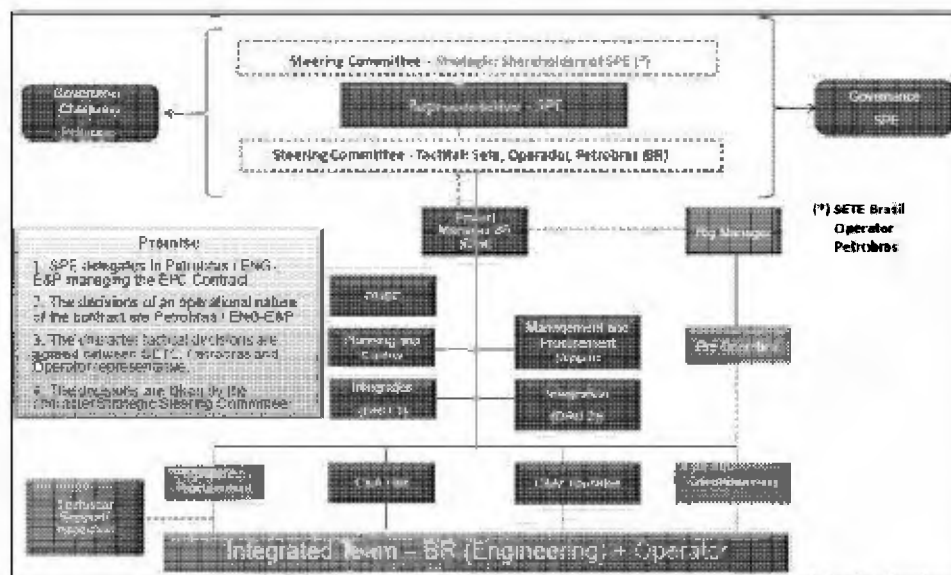


The following key tasks have been agreed under this arrangement;

- Petrobras shall procure and provide qualified and experienced personnel as are required for the performance of its obligations.
- Inform the Owner of any change in existing laws, rules, regulations or governmental requirements which may involve any alteration to the technical specifications attached to the DRU to ensure its compliance with such requirements.
- Advise the Owner and make recommendations as to whether the DRU has been completed in accordance with the Scope of Work.

- Check and verify with the EPC Contractor that any and all equipment has been received in good condition, complete and undamaged and in accordance with related purchase orders.
- Submit to the Owner on a monthly basis a construction-in-progress report.
- Use commercially reasonable efforts to ensure that the EPC Contractor delivers to the Owner all required documentation and equipment, as specified in the EPC Contract.
- Observe all tests and commissioning and trials conducted by the EPC Contractor on the DRU in accordance with the EPC Contract and report to the Owner accordingly.
- Verify the calculation of the works progress and measure the portion of works performed and of the events completed and accepted. The results of such verification shall be specified in a Measurement Report.

Details of this arrangement are;



Note for SPE read SPC (Sete in blue, Petrobras in green operator in grey)

Currently the CMA has approximately 200 personnel working on the project.

Progress reporting formatting and calculation should be agreed to a fixed set of overall project progress 'weightings' implemented typically;

| Sector                | Weighting |
|-----------------------|-----------|
| Engineering           | 5%        |
| Procurement           | 10%       |
| Construction          | 60%       |
| Mechanical Completion | 15%       |



**Commissioning 10%**

Based on the above these key areas should be reported on a planned / actual progress S curve basis.

Therefore if engineering is 50% finished the overall project progress element is 2.5% finished, etc.

**10.2 SETE****10.2.1 DRU Construction**

Sete is using a similar arrangement of standard progress calculation as unlike other projects in this case there is progressive payment on engineering and construction progress leading to progress title transfer of the paid construction amounts. Normal projects have milestone payments against refund guarantees with title transfer on delivery. In this case the guarantor is FGCN.

Additionally planned / actual manpower requirements should be reported on a monthly basis in a Histogram format (which should also include all contractor figures).

All yards will adopt this approach although the weightings differ slightly from the above. No yards will adopt an 'Earned Value' approach which is more complicated to operate and does not necessarily give a better indication.

Under this arrangement Petrobras names the "Project Manager", who is responsible for the survey of the EPC contract with the Yard and commands the team of specialists from Petrobras and the Owner.

The Operator nominates the "Owner's Representative" who in turn liaises with the SPC owners.

The Sete project management of the Drillship EPC contract is carried-out in each shipyard by three "CMA's". These consist of a team of very experienced Naval Architects, Marine Engineers and technicians from Petrobras and the Operators, who participated in the last 20 years of many projects of this type (FPSO's, Semi-submersibles, Drillships, Modules, Production Plants, etc.) in Brazil and abroad, mainly in Korea, Japan, Singapore, China and the USA.

The organization of the team, under the Petrobras Project Manager, suits the method of construction of the yard. The Organization Chart shows that the Petrobras engineers and technicians concentrate on the so called "shipbuilding part" and the Owner's technicians on the "drilling features" part, but both work together and cooperate. The scope covers planning and control, engineering and procurement abroad and in Brazil, construction abroad and Commissioning in Brazil. It is divided in disciplines and has a strong line of communication with the shipyard.

Additionally, despite of not being part of its scope, the Petrobras CMA also gives support to the Pre-Operation activity conducted by the Owner's personnel.

**10.2.2 Specification / Technical Requirements**

The technical requirements / specifications for the various DRUs are controlled by three documents;

1. The Charter Agreement, which has an "EXHIBIT I Charter Technical Specification" detailing Petrobras requirements.



2. The EPC contract, which has an "EXHIBIT II General Technical Description" and an "EXHIBIT X General Functional Description". The DRUs must comply with both as these descriptions are the Petrobras requirements.
3. The VESSEL TECHNICAL YARD SPECIFICATION, compiled by the designer of the DRU.

The first two detail Petrobras requirements and the third is a basic description specification for the DRU from a design house. The documents are adequate for purpose but generally leave room for the various yards to interpret how these requirements are met (in detail). Therefore, they do not give full control to the site teams that a detailed Owner's contract specification (with operational input) document would give.

Additionally, there are directives and specifications in the exhibits to the EPC contracts covering;

- Wellhead Connector in the BAP
- Flowmeter / Hose Support
- Cementing Unit
- Painting Specification
- Telecommunications Specification
- Engineering Services Directive
- Procurement Directive
- Construction & Assembly Directive
- Planning & Control Directive
- Quality Assurance Directive
- Commissioning Directive
- HSE & Environment Directive

These are detailed and comprehensive specifications when compared to the overall technical specifications compiled by the designers and go some way to mitigation some of the lack of definition contained therein.

It should be noted that there is a relatively new painting application requirement (SOLAS regulations II 1/3.2 and not specifically listed) requiring a paint technical file to be compiled for preparation and application of tank coatings. This should be picked up by Class and the paint manufacturer's representative on site but will need confirmation.

The coating application (including steel surface preparation) shall be followed up by:

1. Coating system approval
  - a. Statement of compliance / type approval is to be issued by third party.
2. Coating inspection

- a. To be carried out by qualified coating inspectors certified to NACE level II/FROSIO level red during coating. Results are to be included in the Coating Technical File.

### 3. Verification

To be carried out by the Administration or recognized organization, consisting of reviewing the Coating Technical File, checking the Technical Data Sheet and coating system approval, coating identification on representative containers, coating inspectors qualifications and reports. Additionally, shall monitor implementation of the coating inspection requirements. A Coating Technical File shall be prepared and shall include a specification of the coating system, record of the shipyard's and ship owner's coating work, detailed criteria for coating selection, job specifications, inspection, maintenance and repair.

#### 10.2.3 Yard Construction

The construction schedule and progress of the new yard facilities required for the construction in Brazil of the DRU's is part of the yard's monthly report. However, yard construction is not in the scope of the EPC contract which Sete has with the shipyard and as such is not an item under direct survey of Sete or its CMA.

Nevertheless Sete has an indirect control over the yard construction via the Local Content obligation in the EPC contract and via the measurement of the DRU's works progress. As from a certain date onwards such a progress will depend directly of the availability of the new yard facilities in Brazil and delays in the yard construction schedule will seriously restrict the cash flow. Furthermore the EPC contract commits the yard to a DRU construction schedule. Delays in this DRU schedule and not reaching the required local content may give rise to penalties and the Owner can demand an acceleration plan so as to recover the schedules.

#### 10.2.4 Project Risk

Once the design and the procurement phases are advanced and the production at the yard has started, the CMA's, the Design and Engineering contractors, the Main equipment contractors and the shipyard will conduct a "Risk Workshop", in form of a very comprehensive evaluation of what may turn into risks for the project in way of time, safety, cost, interface, etc. The recorded issues will then be qualified, the responsible party is determined and the risk mitigation actions will be recorded in a "Risk Management Master File".

The shipyard also has its own standalone Risk Analysis. Risks which are the typical responsibility of the shipyard are included in the Risk Management File only if they can become (or already are) critical for the success of the project.

The resulting Risk Management Master File is methodically monitored and re-evaluated and the mitigation actions controlled and are dynamic by means of removal of expired risks and inclusion of new risks as the project progresses.

Risk is also specifically covered by a directive in the EPC contract requiring;

The contractor shall submit to owner for approval, no later than 15 (fifteen) Days after the issuance of the Notice to Proceed, the documents related to Risk Management Plan, especially addressing risks related to outsourcing fabrication and assembly of structural parts and blocks. Comprehensive detailing about strategies and actions to mitigate such risks shall include the scope of such plan.

The Risk Management Plan shall encompass the whole supply chain, including subcontractors and suppliers covering;

3.1.3 Without detriment of any other, main areas of concern shall be the following:

- Contract
- Logistics
- Procurement and Supply chain
- Construction and Assembly
- Quality assurance
- HSE

#### **10.2.5 Interface control**

The construction contract with the yard is a fixed price EPC contract and as such the yard is responsible for all interface control and ownership required for the full performance of the contract. One of the main functions of the CMA's is to follow-up this performance in all respects, but neither the CMA Petrobras nor the Operators or Sete Brasil will take any ownership of interfaces.

There are however two specific interfaces to be managed: the adequacy of certain areas and features of the ship for items supplied by Petrobras S.A. at the beginning and during the operation and the "Owner Furnished Equipment-OFE". The former is managed by the CMA Petrobras, who has the function of obtaining the information and providing it to the shipyard. The latter is managed by the Operators, who procure the items and manage the interface with the shipyard and the necessary ship features.

#### **10.2.6 Variations to Contract**

The standard rule in the project is to strongly avoid changes. It is clear however that a strict "no changes" situation is impossible in projects of this nature and size. For this reason a modest budget of US\$ 20 Million per ship is available (approximately 2.5% of construction cost).

Any change, whether for correction or as an opportunity, must be evaluated by the Tactical Committee consisting of the Operator, Petrobras Project Manager and Owner Representative. Items of impact on price and/or time must be evaluated by the Strategic Committee, which includes the board of the Owner.

This is considered a tight control mechanism as once projects move above 5% on the construction cost project control becomes progressively more difficult leading to cost escalation and delay.

#### **10.2.7 Document control**

All documents related to the project design and construction will be recorded and transferred using the Petrobras SIGEM electronic management software. The system is well established over many years and has proved very effective.

SIGEM is customized for the specific project and Petrobras CMA as well as the Operator and Sete Brasil have access to the system.

For commercial correspondence the CMA has a project specific Document Control system and server.

Sete Brasil adopts the SAP system for all payment documentation, with qualified access of the CMA and the Operator.

#### **10.2.8 Monthly Reporting**

Included as an exhibit in the EPC contracts, is a standard monthly reporting requirement which is comprehensive and should adequately clarify / control progress and contractual issues. A copy of the contents page is included in the Appendix.

#### **10.2.9 Auditing**

The CMA Petrobras and Operator audits the shipyard's Standard Procedures and makes its own Check-Off lists.

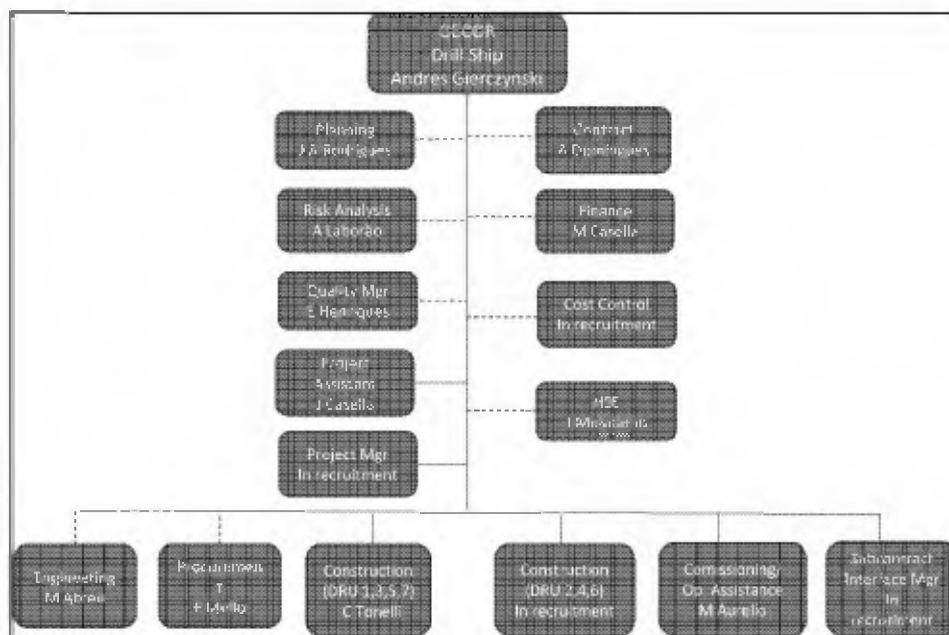
Petrobras as an organization has an internal technical auditing system which covers also the activities of the team of the CMA Petrobras.

A list of the various procedures, plans, reporting and meeting requirements are given in the Appendix.

### **10.3 ESTALEIRO ATLÂNTICO SUL**

The EAS project management structures for the drillships are shown below;

#### **Management and Engineering**

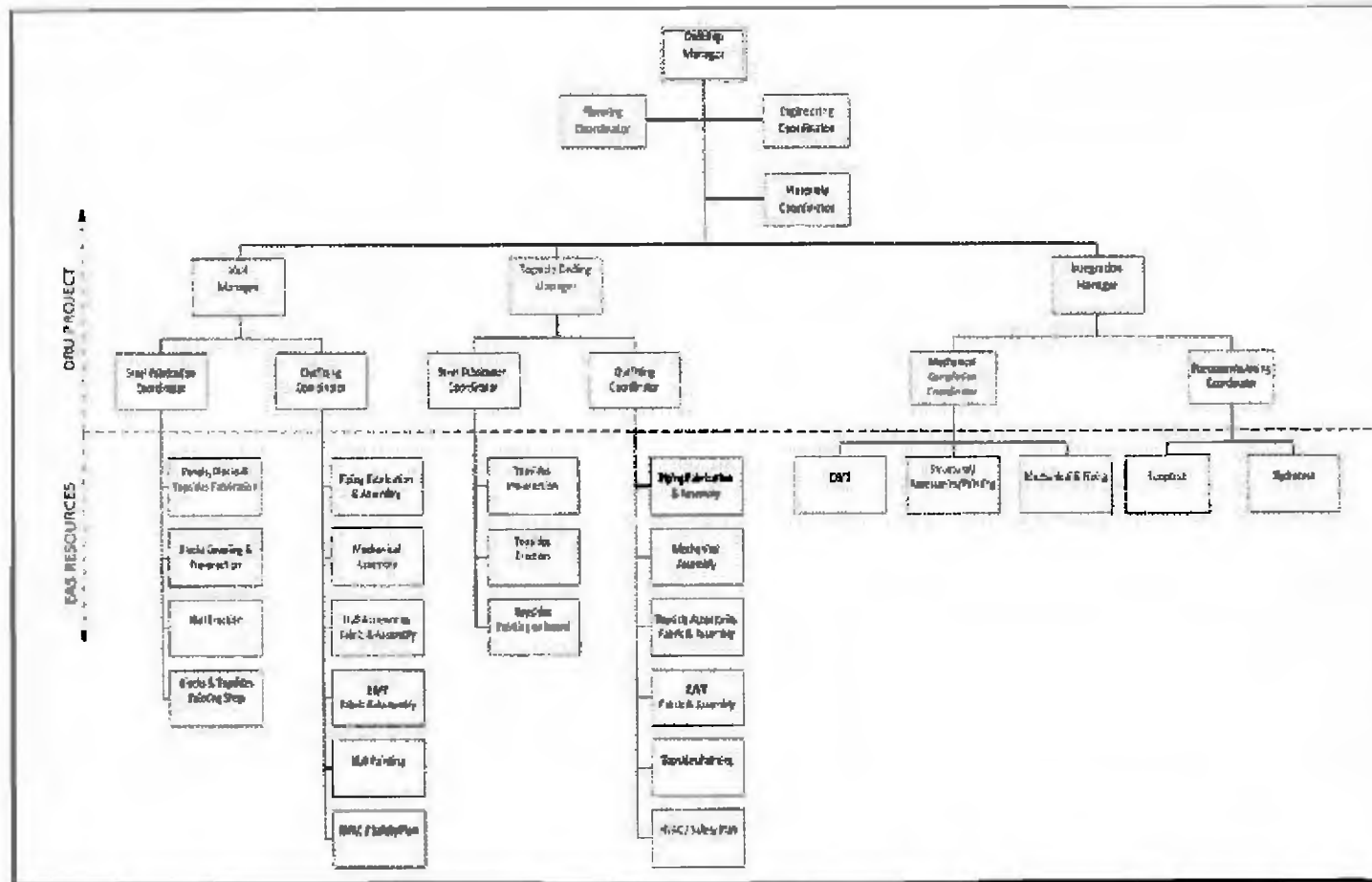


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Sete Brasil Drillship Projects  
TECHNICAL DUE DILIGENCE REVIEW

### Construction Outfitting & Commissioning



Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 98 of 192

Confidential

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## II. Project Organizational Chart (Overall)

```

graph TD
    PM[Project Manager] --> PM1[Planning Manager  
Wesley Lay]
    PM --> PM2[Engineering Manager  
Patrick Cheowshury]
    PM --> PM3[Contracts Manager  
Patrick Ian]
    PM --> PM4[Communications Manager  
K. Liming]
    
    subgraph BHARU
        PM1 -.-> QAQC1[QA/QC  
Vishnu Shanmugam]
        PM2 -.-> PM1B[Production Manager  
K. V. Chinn]
        PM2 -.-> HSE1[HSE  
Jackie Chin]
        PM1B --> Purchaser[Purchaser  
G. S. S. S. S.]
        PM1B --> Construction1[Construction  
Management]
        Purchaser --> CT1[Construction Team]
        Construction1 --> CT1
    end
    
    subgraph SINGAPORE
        PM3 -.-> QAQC2[QA/QC Manager  
S. S. S.]
        PM3 -.-> PM3B[Production Manager  
K. V. Chinn]
        PM3 -.-> HSE2[HSE Manager  
Alex Teo]
        PM3B --> Purchaser2[Purchaser  
G. S. S. S. S.]
        PM3B --> Construction2[Construction  
Management]
        Purchaser2 --> CT2[Construction Team]
        Construction2 --> CT2
    end
  
```

The organizational chart is divided into two main regional sections: BHARU and SINGAPORE, each with its own set of functional roles and a dedicated construction team.

- Project Manager** (Overall)
  - Planning Manager** (Wesley Lay)
    - QA/QC (Vishnu Shanmugam) - BHARU
  - Engineering Manager** (Patrick Cheowshury)
    - Production Manager (K. V. Chinn) - BHARU
      - HSE (Jackie Chin) - BHARU
      - Purchaser (G. S. S. S. S.) - BHARU
      - Construction Management - BHARU
    - Construction Team - BHARU
  - Contracts Manager** (Patrick Ian)
    - QA/QC Manager (S. S. S.) - SINGAPORE
    - Production Manager (K. V. Chinn) - SINGAPORE
      - HSE Manager (Alex Teo) - SINGAPORE
      - Purchaser (G. S. S. S. S.) - SINGAPORE
      - Construction Management - SINGAPORE
    - Construction Team - SINGAPORE
  - Communications Manager** (K. Liming)

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TECHNICAL DUE DILIGENCE REVIEW

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**10.6 ESTALEIRO RIO GRANDE SHIPYARD**

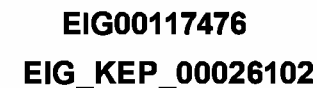
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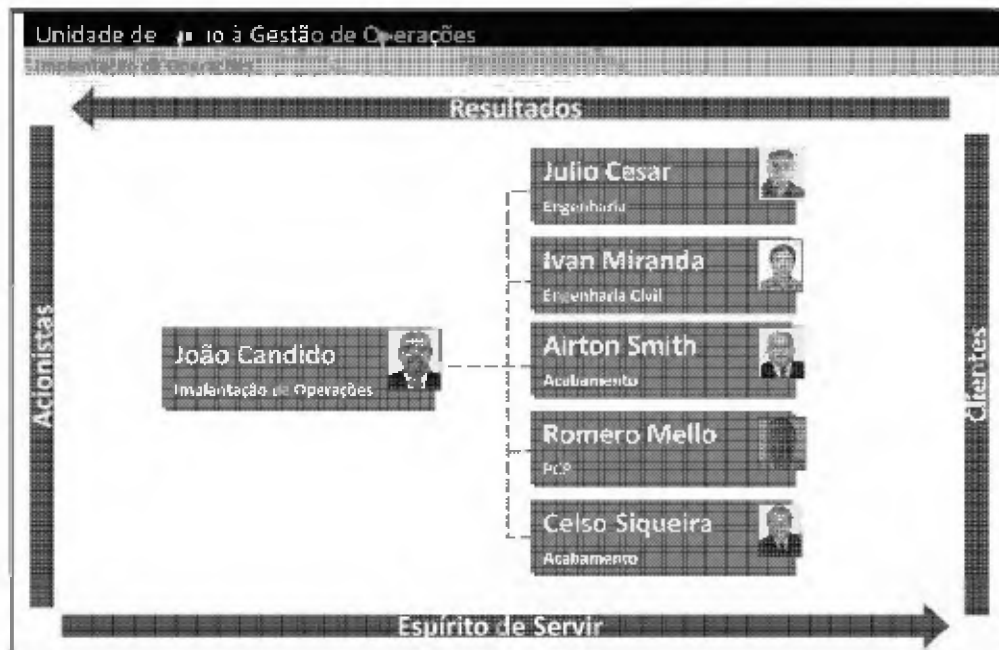
Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 100 of 192

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**10.7 ESTALEIRO ENSEADA PARAGUAÇU**

**11 DETAILED DESIGN / ENGINEERING****11.1 GENERAL**

It has been advised that Petrobras Engineering is providing design / engineering approval services to Sete in relation to all of the DRUs. They will therefore be conversant with the engineering requirements contained within the standard Petrobras charter.

Additionally, as equity partners the operators will also carry out engineering activities and feed this into Petrobras Engineering for consolidating into a single response to the shipyard concerned.

It is the intention of Sete to have strategic design freezes and formal sign off on specification compliance. These actions will significantly reduce technical risk going forward.

Furthermore, variations to contract will be strictly controlled by the technical and executive committees only and not be the site inspection teams. Again this will significantly reduce technical risks of cost escalation and project delay.

In all cases the specifications have been compiled by the designers and whilst comprehensive in scope do not include the level of detail typical of an Owner / Operator compiled specification. In general this means that the finite detail is what the specific yard takes as their interpretation (this typically relates to isolation valves and instrumentation levels but can relate to quality of equipment). There is actually more control in the contract exhibit directives for Owner requirements.

The typical order of precedent for project contractual documentation is listed in order

1. Contract (i.e. the contract specifications and directives appended within the contract take precedence over the specification)
2. Specification
3. Drawings

In addition, there is a precedent within the specification itself with the 'General' section coming first followed by the specialist sections. Therefore, anything required to cover all sections of the specification should be included in the 'General' section not in any of the specialist sections (as it would apply to that specialist section only).

Finally, in relation to drawings Sete will comment on drawings only with final responsibility for design and construction always resting with the relevant shipyard.

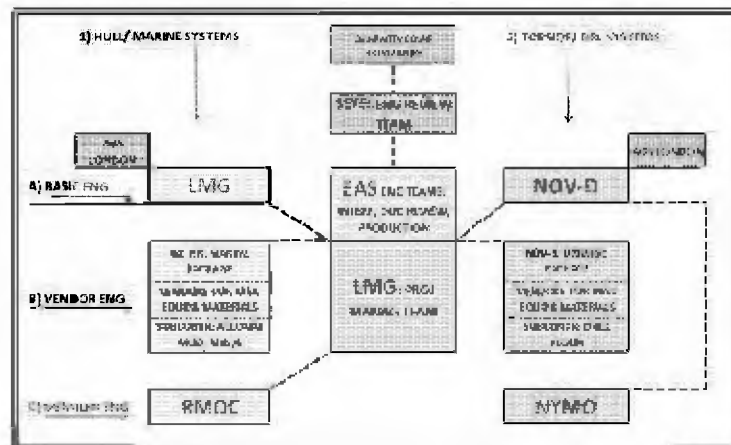
Note that NOV / Aker (Maritime Hydraulics) and GS / Converteam will cover the drilling and DP system engineering designs. This is a typical arrangement however the main design responsibility still remains with the respective shipyard.

**11.2 ESTALEIRO ATLÂNTICO SUL****11.2.1 Basic design**

Completed, Class approved and frozen



The breakdown of responsibilities and support is shown below. The core control is via EAS engineering team supported by LMG as the designers of the DRU. NOV covers the drilling system and detailed engineering support is supported by the design houses of RMDC for the marine systems and NYMO for the drilling system.



**Completed but awaiting formal sign off by Sete / Petrobras Engineering.**

**Completed, Class approved and frozen**

Currently being completed by Keppel FELS in Singapore and a design freeze is scheduled for June 2013.

**Completed but awaiting formal sign off by Sete / Petrobras Engineering.**

**Completed, Class approved and frozen**

**Currently being completed by Jurong in Singapore**

**Completed but awaiting formal sign off by Sete / Petrobras Engineering**



**11.5 ESTALEIRO RIO GRANDE SHIPYARD**

**11.5.1 Basic design**

Completed, Class approved and frozen

**11.5.2 Detailed design**

Currently being completed

**11.5.3 Technical specification**

Completed but awaiting formal sign off by Sete / Petrobras Engineering.

**11.6 ESTALEIRO ENSEADA PARAGUAÇU**

The design process is controlled according to PL-EN-004 ENGINEERING SERVICES MANAGEMENT PLAN.

**11.6.1 Basic design**

Completed, Class approved and frozen

**11.6.2 Detailed design**

Detailed design support has been contracted from ICE - International Engineering Contractor / Romania this is a known supplier of this type of service.

Completed but awaiting formal sign off by Sete / Petrobras Engineering.



tolerance. It is therefore recommended that final machining is only carried out in Brazil prior to fitting the thrusters.

## **12.2 SETE**

The yards basically provide 3 types of monthly reports:

- (i) Work progress
- (ii) Local Content report for each DRU
- (iii) Works Measuring Report

The yard's monthly reports detailing the works progress cover all DRU's individually and are very comprehensive in all respect: Design, engineering, planned and real schedules, procurement, construction of hull and out-fitting, commissioning, tests, documentation and many other aspects. Finally, the yards will also issue the Physical Progress "S" curves (planned / actual progress) of each DRU and a consolidated DRU's list.

The Local Content report covers the ship itself and all its material and equipment. This report is set-up by the yard and by the Local Content Certifying Agent and follows the ANP rules. All yards contracted ABS as certifying agent, except Ecovix, who contracted Millennium.

The CMA professionals follow-up the works daily and evaluate all yard's works and local Content reports and issue weekly and monthly CMA reports. Jurong CMA Engenharia Petrobras is a typical example.

The CMA also evaluates the yard's "Works Measurement Report". Once approved this Measurement Report is the basis of the yard's invoices.

Sete Brasil issues monthly reports to its shareholders and to Petrobras PGSU. Enclosure 5-EAS RELATORIO 7BR SET 012 is a typical example. The works progress is based on the Petrobras reports.

As from December onwards there is also a report to PGSU about the progress in the time schedule of the works, the physical progress "S" curves of the DRU's of all yards, the follow-up of design, procurement and construction aspects of all DRU's and the steps to be taken by Sete and the Operators for the future operation of the unit.

Sete Brasil also issued a (confidential) monthly "Asset Construction Report" to its shareholders. This is a summary of all physical and financial progress of all DRU's under construction, containing also the financial commitments for the next 3 months and reporting any irregularity or deviation that has occurred.

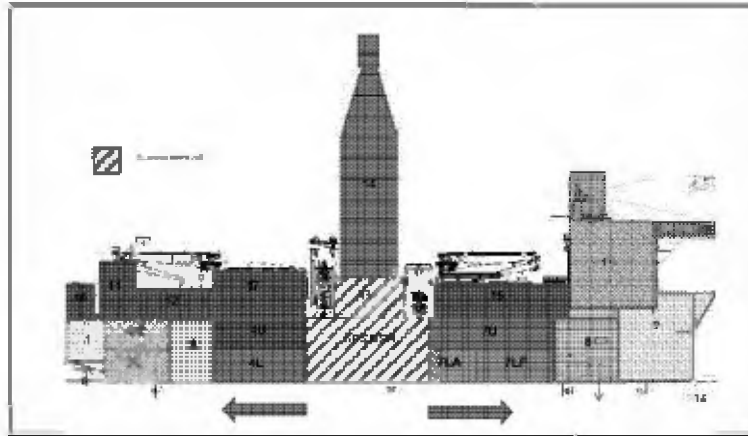
Sete Brasil does not have ISO 9001 or ISO 14001 as it is basically an Asset Owning Company which means these certifications are not necessary.

Petrobras has an internal and external technical auditing, but the details have to be obtained from Petrobras directly.

## **12.3 ESTALEIRO ATLÂNTICO SUL**

### **12.3.1 Methodology**

The diagram below shows the split between those elements to be fabricated by subcontractors and those by the yard itself;



The seven units will be fabricated at the shipyard with the exception of Megablocks 5/6, Drill floors and Accommodation Modules (shown in stripes).

The Megablocks 5/6 (Midship section), the Drill floors and the Accommodation Modules will be subcontracted to experienced shipyards and then delivered to EAS shipyard.

All of the Megablocks and Modules will be erected in the dry-dock using the Goliath Gantry Cranes, hooked up, and tested in the shipyard. These units have an individual capacity of 1500 T with a paired capacity of 2300 T.

Steel will be purchased from UNIMAS in Brazil but profiles have to be purchased from outside of Brazil.

#### **12.3.2 Quality / Safety / Environment**

The yard does not hold any formal ISO accreditation.

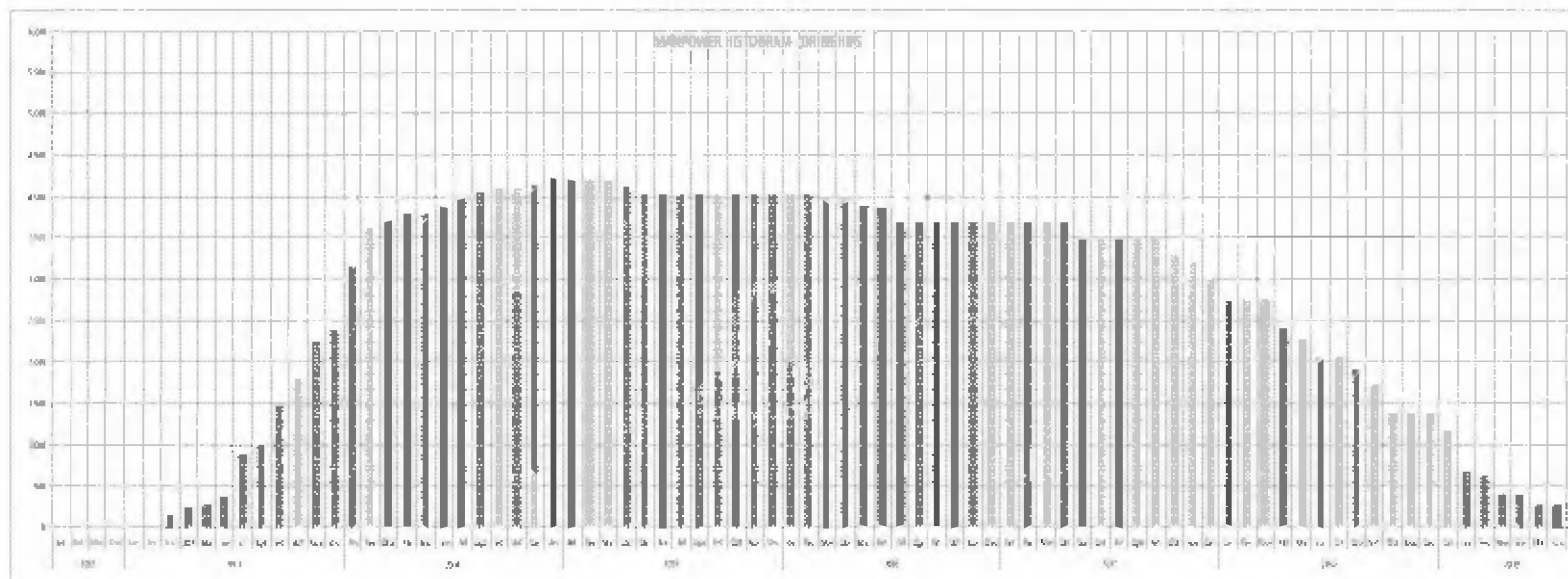
#### **12.3.3 Manpower / resources**

The histogram below shows the expected manpower requirement for the project with a peak requirement of approximately 4,200 personnel.





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

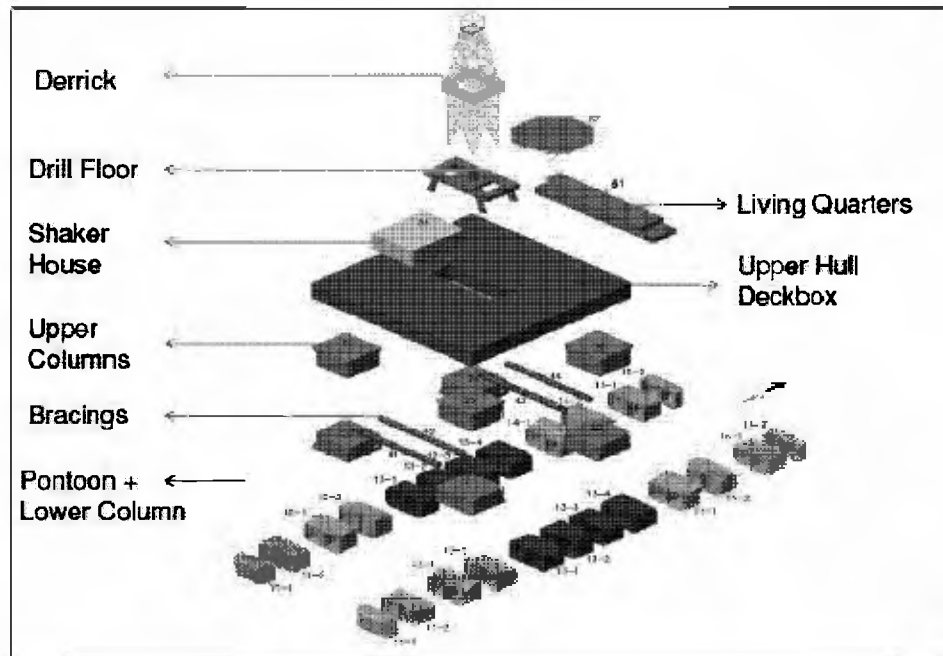


Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 109 of 192

**12.4 BRASFELS****12.4.1 Methodology**

A high level of outfitting is envisaged by this yard including mechanical completion of equipment and systems within the mega block prior to assembly.



Steel procurement will be plates from USIMINAS Brazil and suppliers from China with profiles sourced by Keppel FELS.

The pontoons and lower columns for the first five DRUs will be fabricated up to mechanical completion at Keppel Batangas shipyard in the Philippines. The final DRU will be fabricated and outfitted to the block stage only for completion in Brazil.

Upper columns (basic steelwork structures) will be fabricated at the subcontracted yard Bintan Indonesia (45 minutes from KeppelFELS).

All parts will be dry towed to Brazil for completion.

**12.4.2 Quality / Safety / Environment**

The yard carries a full set of the expected ISO accreditations and these have been in place since 2006. They are externally audited by Bureau Veritas ("BV").

Subcontractor quality control was reportedly only by the subcontractors own system and ABS. The subcontractors used are known to Keppel FELS and have been used for a number of years but from a technical diligence point of view they should be formally working to the master contract quality control regime particularly as there is a high sub-contractor involvement certainly on the first DRU.

**12.4.3 Manpower / resources**

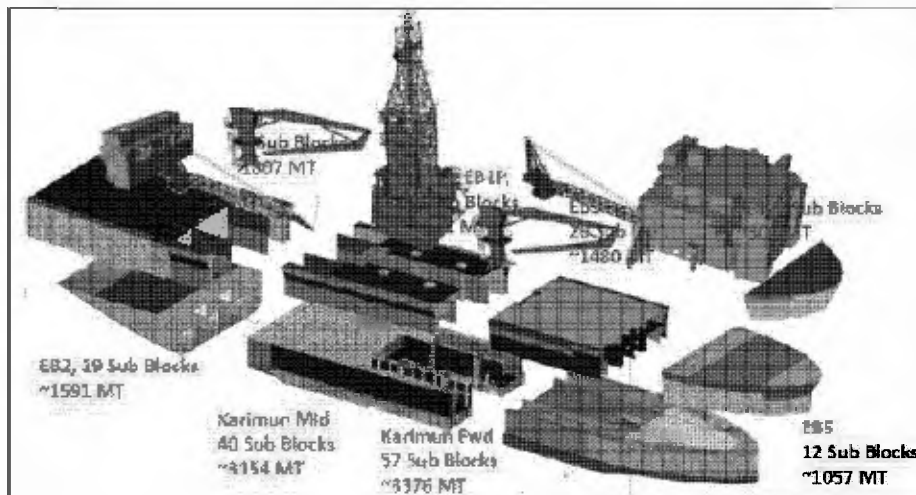
The estimated manpower resources for the project will peak at 3,000 personnel out of a total pool of 6,000 personnel.

**12.5 JURONG BRAZIL**

For the seven DRUs, there are two sets of configuration for the build strategy;

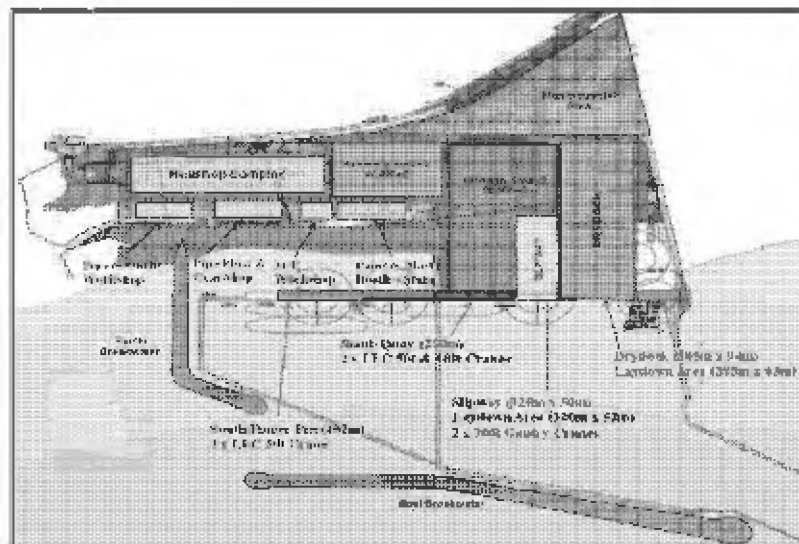

- DRU 1 & DRU 7: The hull will be constructed in Singapore and partial pre-outfitted prior to tow to Brazil. Jurong Brazil will perform fabrication of the remaining structures; complete the installation, completion, commissioning and handover.
  - Singapore
    - Hull Construction up to the Main Deck
    - Outfitting, Piping, Electrical and Painting Works
    - Partial Equipment Loading
  - Brazil
    - Above Main Deck Superstructure Erection (Drill floor, Derrick, Accommodation, etc.)
    - Further Installation of Outfitting, Piping, Electrical and Equipment
    - Sea Trials, Offshore Commissioning

The initial units (Nos. 1 & 7) will have the forward and aft sections of the hull constructed in sub-contractor yards in Indonesia (PT Karimun and Batamec) these are known shipyards to Jurong and are commonly used for basic steelwork items. In this case the sections amount to 6500 T with Jurong constructing the Midship section totaling 8100 T (all sections) will be joined in Singapore prior to transportation (wet towing) to Brazil.



- DRU 2 to DRU 6: The hull will be constructed in Brazil, fully outfitted installation, completion, commissioning and handover. The remaining structure (living quarters and drill floor, 2000 T) will be executed in Singapore and towed to Brazil for installation.

- Block breakdown for DRU#2 to DRU#6 differs from DRU#1 and DRU#7
- DRU#1 & DRU#7 have a total of 204 sub blocks whereas DRU#2 to DRU#6 have an estimated 153 sub blocks
- The blocks are designed to effectively utilize the EJA construction heavy lift gantry crane of 300mt.
- DRU#2 to DRU#6 sub blocks are constructed via slipway using 2 gantry cranes of 300mt each



### 12.5.1 Methodology

**Software to be adopted during the design and construction process includes those to be considered industry standards.**

**Design:**

- **Nastran & Patran: Finite Element**

- Tribon / NUPASS: Line Fairing/nesting/plate development
- DNV 3D Beam Element Analysis: 3D Steel Structural Strength Calc
- HEC Stability Calc Package: Hydrostatic/Stability
- Autocad: Drafting
- Aveva Marine Plant Design and Management System ("PDMS")

**Planning:**

- Primavera Project Planner P3
- Primavera Project Management P6
- Microsoft Project

**Production Control:**

- Engineering, Procurement, Construction, Commissioning and EPCC integrated module software

Steelwork sourcing for the project is as follows;

**Steel sourcing of plate:**

- USIMINAS, Brazil
- JFE Steel, Japan
- Nippon Steel, Japan
- Sumitomo Metal, Japan
- Baoshan Iron and Steel, China
- Posco, South Korea

**Steel Sourcing of Profile:**

- Arcelormittal, Brazil
- Gerdau, Brazil
- JFE Bars & Shapes, Japan
- Changshu Longteng, China
- Ozkan, Turkey

**Steelwork capacity**

Jurong Singapore has a maximum steel work capacity about 4,000mt whereas Jurong Brazil is expected to have a steel work capacity ranging from about 2,000mt and 4,000mt per month at maximum. Based on planning requirement for all 7 DRUs, the tonnage output per month for each entity:

- Jurong Singapore: 1,200mt (Max); 750mt (Average)
- Jurong Brazil: 1,200mt (Max); 750mt (Average)

Block outfitting is expected to approximately 60%.

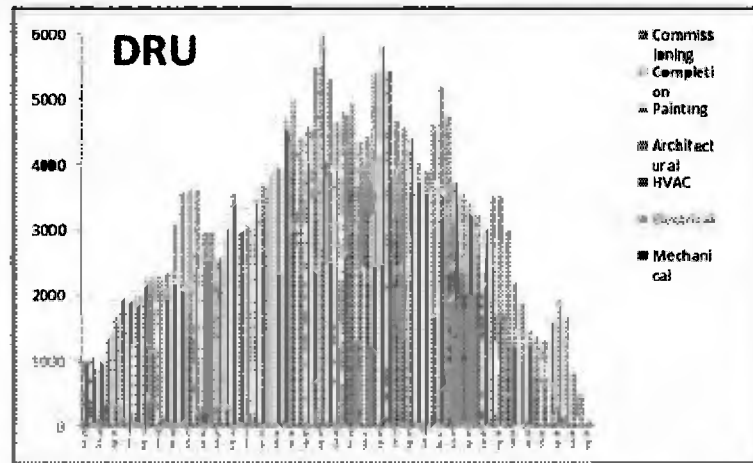
**12.5.2 Safety / environment**

The yard will adopt Jurong standard requirements but as yet does not have the associated ISO accreditations.



**12.5.3 Manpower / resources**

The following manpower resources breakdown has been developed and this is consistent with a typical construction / commissioning requirement.

**Determination of resources (manpower):**

- Based on the scope of work, scheduling is performed to define the timeframe required to complete each task/discipline.
- From each task/discipline, key performance indicators ("KPI") are identified as a base to measure the required effort.
- The unit rate of manpower resource for each KPI is derived from the scheduled task period.
- The manpower requirement for each month is defined as the summation of all efforts to perform all the required KPI during the month.

**Control of resources (manpower):**

- The project management team ("PMT") and project manager is responsible to control the resource.
- The PMT will closely monitor each work package to ensure budgetary means are met.
- Work will be controlled and monitored via EPCC system where resource will be implemented when required.

The current manpower for Jurong shipyard in Singapore comprises of direct employed and subcontracted which ranges from 12,000 workers and peak at 15,000 workers.

The manpower plan for EJA will comprise of between 5,000 to 6,000 workers at peak capacity.



Basing on the projected planning scope for each DRU, the manpower requirement for will peak at 2,200 workers per day within the last 8 months prior to delivery. Average manpower requirement is around 1,100 workers.

#### 12.5.4 Delivery Statistics & Concurrent Projects

Jurong Singapore has a good delivery record consistent with good industry performance. See their delivery history (excluding jack-up drilling rigs) below (all are semi submersibles);

| S/N | Drillship Name                    | Owner                       | Contractual Delivery | Actual (Protocol) |
|-----|-----------------------------------|-----------------------------|----------------------|-------------------|
| 1   | GSF Development Driller I         | Transocean                  | Feb-05               | Mar-05            |
| 2   | GSF Development Driller II        | Transocean                  | Mar-05               | Feb-05            |
| 3   | West Sirius (EX. Sea Drill 8)     | Seadrill                    | Feb-08               | Mar-08            |
| 4   | West Taurus (EX. Sea Drill 9)     | Seadrill                    | Nov-08               | Nov-08            |
| 5   | Ocean Courage (EX. PetroRig I)    | Diamond Offshore Drilling   | Mar-09               | Jun-09            |
| 6   | Ocean Valor (EX. PetroRig II)     | Diamond Offshore Drilling   | Sep-09               | Oct-09            |
| 7   | Centenario GR (EX. PetroRig III)  | Grupo R                     | Jan-10               | Mar-10            |
| 8   | West Orion (EX. Sea Drill 13)     | Seadrill                    | Apr-10               | Apr-10            |
| 9   | Atwood Osprey                     | Atwood Oceanics Pacific     | Jan-11               | Apr-11            |
| 10  | Songa Eclipse (EX. Larsen Rig I)  | Songa Offshore              | Apr-11               | Aug-11            |
| 11  | West Capricorn (EX. Sea Drill 14) | Seadrill                    | Dec-11               | Dec-11            |
| 12  | Atwood Condor                     | Atwood Oceanics Pacific Ltd | Jun-12               | Jun-12            |

EJA will perform its first projects with Sete and Petrobras concurrently, the first DRU and Tupi / Guara.

The 7 DRUs are contracted with Sete SPC companies under a full turnkey EPC contract and scheduled for delivery up to the 3<sup>rd</sup> Quarter of 2019.

For Tupi / Guara P68/P71, it is contracted with Petrobras Netherlands B.V. for the construction of 8 unit modules including pipe racks and the integration / commissioning works for the complete modules. Handover for these two FPSOs is scheduled on 1-Jan-16 (P68) and 15-Jan-17 (P71).

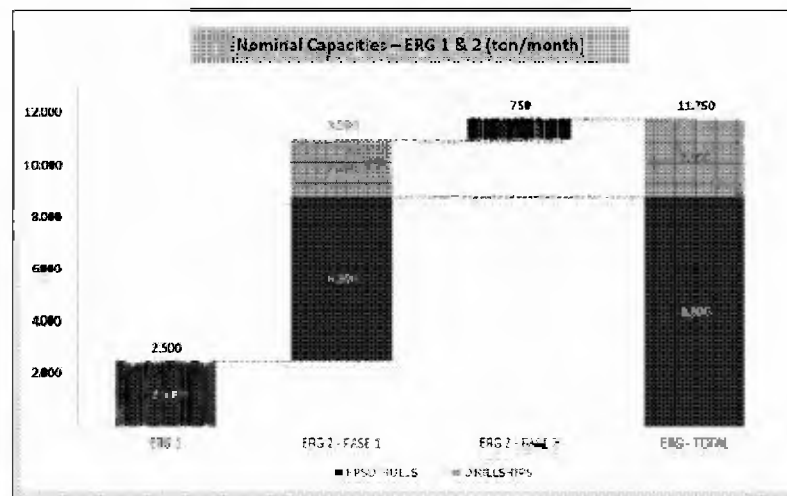
## 12.6 ESTALEIRO RIO GRANDE SHIPYARD

### 12.6.1 Methodology

The following software is being used on the project all considered industry standard.

| <b>MAIN SOFTWARES</b>   |   |
|---|---|
| <b>Doc Control</b> <ul style="list-style-type: none"> <li>• Project Wise</li> <li>• Sigem - Petrobras</li> </ul>  | <b>Procurement</b> <ul style="list-style-type: none"> <li>• Hant</li> </ul>   |
| <b>Engineering Systems</b> <ul style="list-style-type: none"> <li>• Ansys – FEA</li> <li>• Hysis - FEA</li> <li>• Caesar II – Piping</li> <li>• PipeNet – Piping</li> </ul> | <b>3D Design</b> <ul style="list-style-type: none"> <li>• Aveva Marine – EAD</li> <li>• AutoCad – CAD</li> <li>• SmartMarine - EAD</li> </ul> |
| <b>Planning</b> <ul style="list-style-type: none"> <li>• MS Project</li> <li>• Primavera</li> <li>• Visio</li> </ul>  | <b>Others</b> <ul style="list-style-type: none"> <li>• MS Office</li> </ul>   |

ERG1 relates to FPSO production whilst ERG2 related to the drillships. Nominal steelwork levels are shown below;

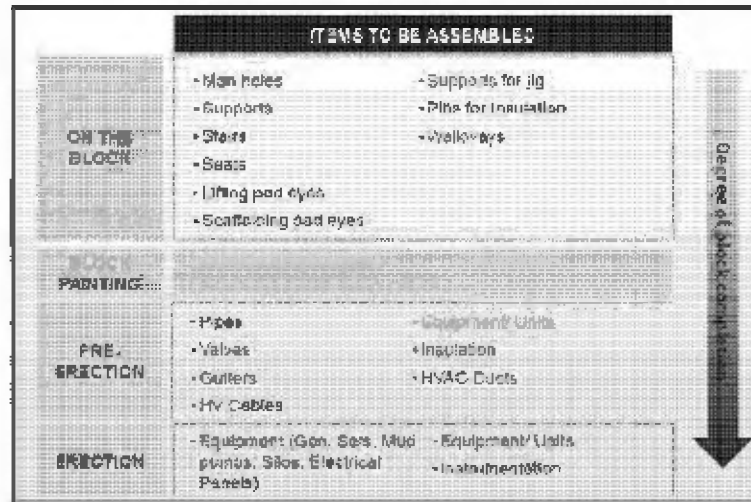


Subcontracted works will be in yards in Rio de Janeiro and Porto Allegro and the yard will station one QA/QC person full time in each yard.

Current production level in ERG1 is running at a reported 2,200 t/m which can be increased to an estimated 2,500 t/m due to productivity improvement.

ERG 2 monthly steelwork capacity for the drillships compared to the total available (this appears well within the rated capacity of the equipment if productivity can match this level;





Only one major block will be subcontracted and this is the Living Quarters which will be contracted on a completion to arrival in Brazil EPC basis.

#### 12.6.2 Quality / Safety / environment

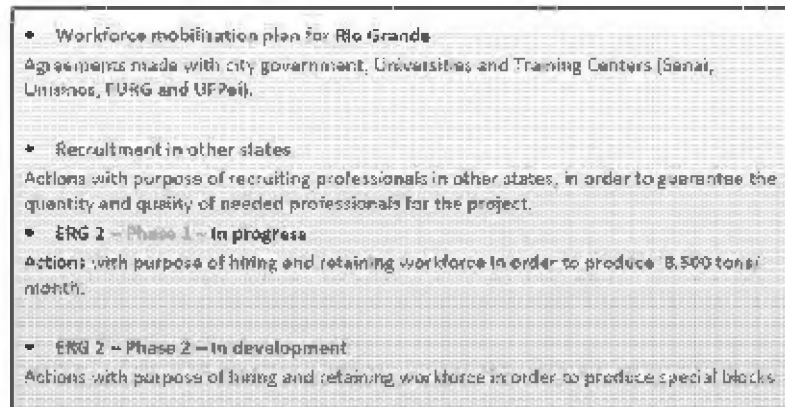
The shipyard holds industry standard control systems since June 2012;

- ISO 9001 - Quality Management System
- ISO 14001 - Environmental Management System
- OHSAS 18001 - Occupational Health and Safety Management System

Quality control inspections are performed using the Sistema Nacional de Qualificação e Certificação (SNQC) system with qualified inspectors and followed by ABS Class Society and TGBV;

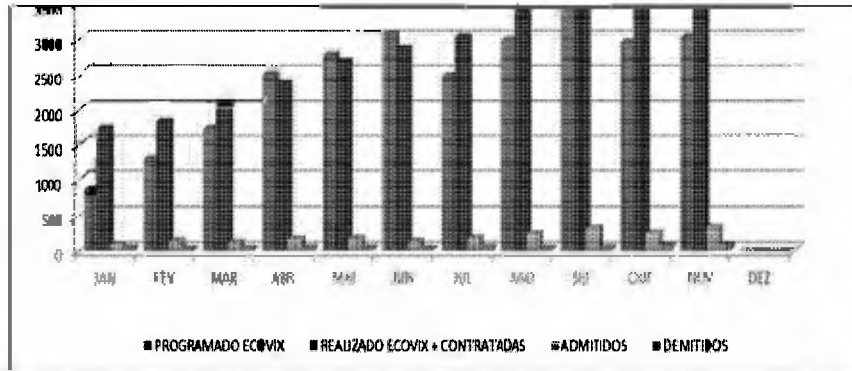
#### 12.6.3 Manpower / resources

A resources planning including training requirements has been instigated.





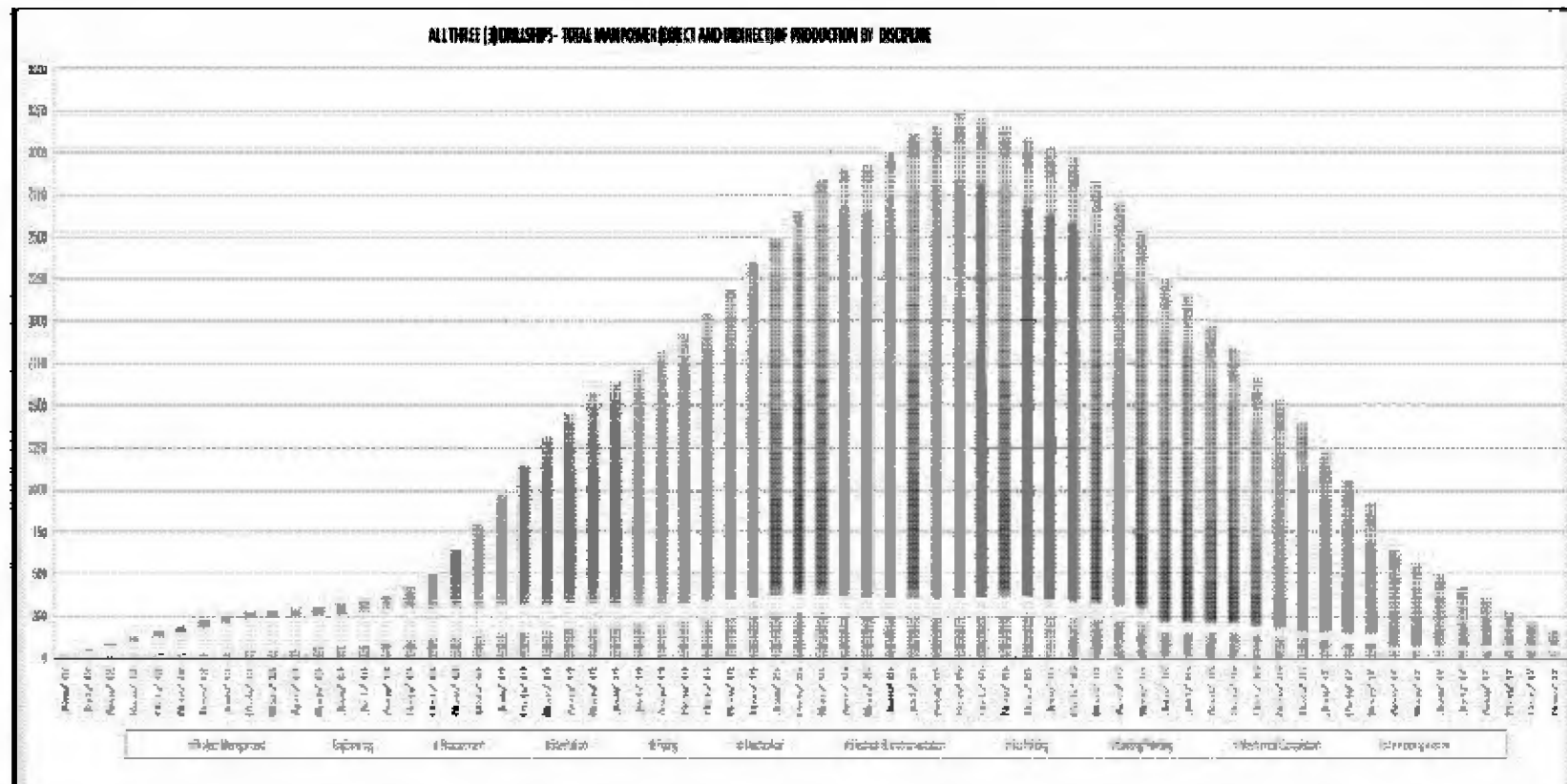
The histogram below shows planned manpower requirements primarily by staff and subcontractor input showing a peak requirement of approximately 3,800 personnel this represents 70% of the maximum envisage workforce of the yard.



The yard will have to recruit personnel to service this project and it is currently utilizing the national training facilities for this process. The success rate from these facilities was advised as 30-40% of those initially joining the scheme being suitable for long term employment.



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW



Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TDD Report Rev 2

Page 120 of 192



## **12.7 ESTALEIRO ENSEADA PARAGUAÇU**

### **12.7.1 Methodology**

The shipyard is designed to perform 36,000T/year, or 3,000T/month with single shift. The design for the project under review is 16,000 T/ DRU.

Steel plates and profiles will be bought in Japan or South Korea.

EEP will adopt KHI standards (based on Japanese Industrial Standards, JIS) and processes.

The software to be used is basically that used by KHI and constitutes;

|            |                         |
|------------|-------------------------|
| Design     | AVEVA MARINE            |
| Planning   | PRIMAVERA ENTERPRISE P6 |
| Production | KMACS                   |

This is a mixture of industry standard and proprietary software packages.

Block outfitting is expected to be approximately 90%.

### **12.7.2 Safety / environment**

The yard as yet is not formally accredited but the partnership companies are credited by ISO 9000, ISO 14000 and OSHAS 18000.

The intention is to progress this yard to the same standards.

### **12.7.3 Manpower / resources**

The following manpower breakdown has been provided for the Brazilian shipyard:

|             |       |
|-------------|-------|
| Management  | 28    |
| Technical   | 112   |
| Planning    | 33    |
| Safety      | 307   |
| QA/QC       | 124   |
| Supervisory | 166   |
| Manual      | 3,510 |

Total manpower required for the project amounts to 5,000 people. Total manpower required by concurrent projects amounts to 8,000 people.

**13 COMMISSIONING / ACCEPTANCE**

Each EPC contract includes a commissioning / acceptance directive to cover the requirements of Petrobras.

Documentation to be produced in the ongoing detailed engineering / construction phase and in conjunction with equipment / system manufacturers will be;

- Mechanical completion file
- Commissioning plan
- Commissioning procedures
- Commissioning acceptance file (this last document should form part of the delivery protocol documentation package)

In relation to the DP system it is important that the final set up is recorded as a backup. There have been instances in the past when this has not happened and if the system has been restored the backup further problems have become evident until the system setup was recovered from the commissioning engineer's laptop.

After commissioning at each yard (and delivery acceptance) each DRU will go through a standard Petrobras pre-charter audit before being formally accepted on charter, this is typically either 'off Brazil' or at the specific field location, but in this case it will be carried out at each of the shipyards concerned.

Petrobras undertakes, in what is possible, to follow up on commissioning tests along the shipyard in order to anticipate the UNIT receiving tests, CONTRACTOR shall inform PETROBRAS the test schedule on shipyard within 90 days in advance. If the test schedule changes after the notification has been issued, CONTRACTOR shall inform PETROBRAS as soon as it has been informed and at least within 15 (fifteen) days in advance of the new date for the tests.

**13.1 ESTALEIRO ATLÂNTICO SUL**

Thrusters will be fitted in the bay adjacent to the shipyard and once fitted the DRU at present cannot return to the yard. To do so will require dredging and additional piling of the existing outfitting quay.

**13.2 BRASFELS**

Thrusters will be fitted in the bay adjacent to the shipyard and once fitted the DRU cannot return to the yard. To do so will require dredging and additional piling of the existing outfitting quay.

**13.3 JURONG BRAZIL**

Commissioning activities will be performed at south quay while trials will be carried out at dedicated deepwater route concurrent with offshore commissioning.

Prior to sea trial, all thrusters will be installed at location near south quay with the implementation of thruster pits. To do so will require dredging and additional piling of the existing outfitting quay.



**13.4 ESTALEIRO RIO GRANDE SHIPYARD**

Thrusters will be fitted adjacent to the shipyard and once fitted the DRU cannot return to the outfitting berth. To do so will require dredging and additional piling of the existing outfitting quay.

**13.5 ESTALEIRO ENSEADA PARAGUAÇU**

Commissioning will be performed at quay. Trial will be performed within Todos os Santos Bay. Underwater assembly of the thrusters will be executed in a nearby deep well area. To do so will require dredging and additional piling of the existing outfitting quay.



**14 INSURANCES****14.1 CONSTRUCTION**

During the construction phase, each SPC shall contract a Builders All Risk Insurance ("BAR"), and other insurance necessary to the performance of the works or demanded by lenders. It is recommended that this is done in conjunction with each shipyard as jointly assured under the same policy. This policy should be for an insured value of the value of the DRU(s) concerned depending upon how it is eventually set up.

The requirements of the EPC contracts are;

**14.1.1 Contractors**

- Workmen's' compensation
- Life Assurance 36 x salary capped at R\$ 900,000
- Personal Accident R\$ 900,000
- Employer's Liability R\$ 1 million per occurrence or in aggregate
- Public Liability R\$ 3 million
- Automobile R\$ 500,000
- Machinery & Equipment Actual value

**14.1.2 Marine Resources**

- Hull & Machinery Actual value
- Protection & Indemnity Actual value
- Transport & Installation Actual value

**14.1.3 With the following deductibles applicable (US\$)**

- Cargo Transits, Onshore Work, Fabrication, Procurement
  - \$500,000.00
- Offshore Work and Associated Subsequent Maintenance
  - \$1,500,000.00
- Tows within Waters to Final Offshore Site or other Locations
  - \$1,500,000.00
- Defective Part Buyback Endorsement
  - \$500,000.00
- All Non-Specified Activities
  - \$1,500,000.00
- Third Party Liability
  - \$250,000.00

**14.1.4 Corporate**

- Third Party US\$ 250 million

**14.1.5 Owners**

- Offshore Construction Project Welcar 2001

The Operator /Owner shall be the principal assured of the BAR insurance and Sete Brasil is the beneficiary until the loss proceeds are not assigned to the lenders.

**14.2 OPERATIONS**

For the Operational Phase that Sete may contract individually for each SPC, but in the aggregate so as to generate the effects described above, the following insurance which should be set for a value of up to USD \$10 million per incident.

The Company (or the Operator, on behalf of the Company) will purchase, in the benefit of the Company, a waiver of subrogation for all such parties by the insurers, the following types of insurance that are typical for drilling rigs:

- Third-Party Liability Insurance
- Loss of Hire
- Total Loss
- Protection and Indemnity's
- Cargo/Transportation
- Hull & Machinery
- Bunker Blue Card
- DPEM
- Property Insurance

It is recommended that Protection & Indemnity Insurance ("P&I") for the same value, be put in place for both the end of the construction (when operations personnel attend) and operations phase to cover owner / operator personnel also.

An insurance broker will advise on the specific policies.

**15 ENVIRONMENT****15.1 CONSTRUCTION**

The EPC contract requires that the yards are responsible for obtaining all necessary licenses and consents for the envisaged works covering human health and the natural environment.

Included in the EPC contracts is an exhibit specifying that the Owner shall supply an Environmental Permit (IBAMA – Instituto Brasileiro do Meio Ambiente e dos Recursos Renováveis), related to the operation of the DRU at location and that the Contractor will support the Owner in supplying the relative supporting data.

Specific Metocean data for the following field are included as an exhibit to the EPC contract;

- Campos Basin
- Santos Basin
- Espírito Santos Basin

Where shipyard construction / extension are concerned the licensing situation is as follows;

| <b>Yard</b> | <b>Position</b>   |
|-------------|---|
| ERG 2       | Operating license for Painting Cabins - issued on 24.07.2012<br>Dredging license – issued Jan/13  |
| EJA         | The Operating licenses will be issued in stages:<br>Dredging - Jul/13;<br>South Pier - Nov/13;<br>Workshop and General Assembly areas of the blocks - Dec/13;<br>Slipway - Jun/14 |
| EEP         | Forecast - Partial operating license in October 2013<br>Environmental licensing process is being monitored through the S curve of the construction the shipyard                   |

**15.2 CHARTER**

The standard Petrobras charter stipulates the weather and environmental conditions for the Campos Basin in which the DRUs are required to operate (Annex 1, Section B) and limiting environmental conditions for operation are stipulated in Annex 5.

| OPERATION  | HEAVE<br>( FEET ) | PITCH OR<br>ROLL<br>(DEGREES) | WIND<br>(MPH) | WAVES<br>(FEET) |
|--|-------------------|-------------------------------|---------------|-----------------|
| Blasting/ driving of the conductor                         | 6                 | 3                             | -             | -               |
| Drilling   | 12                | 4                             | -             | -               |
| Maneuver of casing   | 8                 | 4                             | 45            | -               |
| Laying of the Casing Hanger                                | 4                 | 3                             | -             | -               |
| Maneuver of BOP  | 8                 | 2                             | 45            | -               |
| Laying of the BOP with compensator                         | 4                 | 2                             | -             | -               |
| Maneuver of work column, drill string or production column | 12                | 4                             | 45            | -               |
| Connection of the LMRP                                     | 4                 | 3                             | -             | -               |
| Formation Test   | 10                | 3                             | 45            | -               |
| Operation with boats                                       | 8                 | 3                             | 35            | -               |
| Maneuver of BAP  | 8                 | 3                             | -             | -               |
| Laying of the Gap  | 5                 | 3                             | -             | -               |
| Maneuver of ANM ( lay - away )                             | 6                 | 3                             | 45            | -               |
| Maneuver of ANM (lay-away)                                 | 5                 | 3                             | -             | -               |
| Maneuver of ANM ( without being lay-away )                 | 6                 | 3                             | -             | -               |
| Maneuver of ANM (without being lay-away )                  | 5                 | 3                             | -             | -               |
| Mounting and Dismounting of equipment with flexi-tube      | 5                 | 2                             | 30            | -               |
| Mounting and Dismounting of Wire Line Equipment            | 6                 | 3                             | 30            | -               |

NOTE: These parameters may be corrected/adjusted later in common agreement between the parties, considering the operational performance of the UNIT.

Additionally, Annex 6 covers the minimum requirements for HSE and Environmental issues. This requirement requires the following principal documentation to be produced regarding environmental issues;

- Program for the prevention of environmental risks ("PPRA")
- Preliminary risk analysis ("APR")
- Individual emergency plan ("PEI")
- Manifest of Residues

**16 CAPEX / OPERATIONS & MAINTENANCE****16.1 SETE**

The model CapEx breakdown is shown below;

| Source                   | First System (7 rigs) | New System (21 rigs) | Total (28 rigs)     |
|--------------------------|-----------------------|----------------------|---------------------|
| Construction Cost        | \$4,637,000           | \$16,850,000         | \$21,487,000        |
| EPC Contract Indexation  | 768,296               | 1,440,762            | 2,209,058           |
| Start-up Equipment       | 105,000               | 630,000              | 735,000             |
| FG&CN                    | 25,469                | 75,852               | 102,321             |
| Construction Supervision | 58,450                | 634,000              | 692,450             |
| Insurance                | 70,958                | 283,948              | 354,906             |
| Financial Costs          | 43,595                | 95,735               | 139,330             |
| <b>Total</b>             | <b>\$5,713,168</b>    | <b>\$19,889,296</b>  | <b>\$25,602,464</b> |

These figures exclude G&A expenses.

These figures are comparable with current industry norms for the region.

The actual EPC contract breakdowns are given below;





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

| SHIPYARD  | DRU NAME       | OPERATOR | CONTRACT<br>VALUE EPC (NA<br>DATA BASE) | USD               | EURO            | REAL               |
|-----------|----------------|----------|---|-------------------|-----------------|--------------------|
| EAS       | NS COPACABANA  | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS GRUMARI     | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS IPANEMA     | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS LEBLON      | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS LEME        | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS MARAMBAIA   | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
|           | NS JOATINGA    | PB       | \$ 662,428,589.95                       | \$ 367,229,584.40 | € 10,169,952.60 | R\$ 528,369,207.00 |
| BRASFELS  | SS URCA        | QG       | \$ 809,288,000.00                       | \$ 364,179,600.00 | € -             | R\$ 694,369,104.00 |
|           | SS FRADE       | PS       | \$ 823,448,000.00                       | \$ 370,551,600.00 | € -             | R\$ 706,518,384.00 |
|           | SS BRACUHY     | QG       | \$ 823,448,000.00                       | \$ 370,551,600.00 | € -             | R\$ 706,518,384.00 |
|           | SS PORTOGALO   | PS       | \$ 823,448,000.00                       | \$ 370,551,600.00 | € -             | R\$ 706,518,384.00 |
|           | SS MANGARATIBA | QG       | \$ 823,448,000.00                       | \$ 370,551,600.00 | € -             | R\$ 706,518,384.00 |
|           | SS ROTINAS     | O        | \$ 823,448,000.00                       | \$ 370,551,600.00 | € -             | R\$ 706,518,384.00 |
| PARAGUAÇU | NS ONDINA      | O        | \$ 798,500,000.00                       | \$ 302,160,372.57 | € 52,181,258.80 | R\$ 680,414,084.84 |
|           | NS PITUBA      | O        | \$ 798,500,000.00                       | \$ 301,855,492.96 | € 52,333,683.25 | R\$ 680,557,316.83 |
|           | NS BOIPEBA     | O        | \$ 798,500,000.00                       | \$ 301,855,492.96 | € 52,333,683.25 | R\$ 680,557,316.83 |
|           | NS INTERLAGOS  | O        | \$ 798,500,000.00                       | \$ 301,855,492.96 | € 52,333,683.25 | R\$ 680,557,316.83 |
|           | NS ITAPEMA     | ET       | \$ 798,500,000.00                       | \$ 301,855,492.96 | € 52,333,683.25 | R\$ 680,557,316.83 |
|           | NS COMANDATUBA | ET       | \$ 798,500,000.00                       | \$ 301,855,492.96 | € 52,333,683.25 | R\$ 680,557,316.83 |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 129 of 192



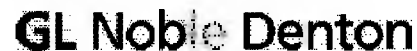
SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

|        |              |     |                   |                   |                  |                    |
|--------|--------------|-----|-------------------|-------------------|------------------|--------------------|
| JURONG | NS ARPOADOR  | PB  | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
|        | NS GUARAPARI | ODF | \$ 806,440,330.59 | \$ 425,100,000.00 | € -              | R\$ 606,750,600.00 |
|        | NS CAMBURI   | SD  | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
|        | NS ITAOCA    | ODF | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
|        | NS ITAUNAS   | SD  | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
|        | NS SIRI      | ODF | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
|        | NS SAHY      | SD  | \$ 806,440,323.96 | \$ 274,683,300.00 | € 105,444,580.00 | R\$ 606,750,600.00 |
| ECOVIX | NS CASSINO   | ET  | \$ 778,000,000.00 | \$ 344,660,669.28 | € 19,861,511.88  | R\$ 647,296,000.00 |
|        | NS CURUMIM   | ET  | \$ 778,000,000.00 | \$ 344,660,669.28 | € 19,861,511.88  | R\$ 647,296,000.00 |
|        | NS SALINAS   | E   | \$ 778,000,000.00 | \$ 344,660,669.28 | € 19,861,511.88  | R\$ 647,296,000.00 |

**Legenda dos Operadores e percentual na SPE:**

|     |                               |
|-----|-------------------------------|
| PB  | Petrobras (15%)               |
| QG  | QGOG (15%)                    |
| PS  | Petroserv (15%)               |
| O   | OOG (15%)                     |
| ET  | Etesco (15%)                  |
| ODF | Odfjell (20%)                 |
| SD  | Sadrill (30%)                 |
|     | To be determined by Petrobras |





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

### Scheduled deliveries and charter start dates

| SHIPYARD  | DRU NAME       | OPERATOR | CONTRACTED LOCAL CONTENT | EPC DELIVERY | TOTAL MONTHS EPC CONTRACT CHARTER | CHARTER START DATE |
|-----------|----------------|----------|--------------------------|--------------|-----------------------------------|--------------------|
| EAS       | NS COPACABANA  | QO       | 55%                      | 22-Feb-16    | 58                                | 20-Mar-16          |
| EAS       | NS GRUMARI     | QO       | 55%                      | 20-Jul-16    | 66                                | 15-Nov-16          |
| EAS       | NS IPANEMA     | QO       | 60%                      | 15-Mar-17    | 74                                | 13-Jul-17          |
| EAS       | NS LEBLON      | QO       | 60%                      | 13-Nov-17    | 82                                | 10-Mar-18          |
| EAS       | NS LEME        | QO       | 65%                      | 10-Jul-18    | 90                                | 05-Nov-18          |
| EAS       | NS MARAMBAIA   | QO       | 65%                      | 06-Dec-18    | 98                                | 03-Jul-19          |
| EAS       | NS JOATINGA    | QO       | 65%                      | 03-Jul-19    | -                                 | -                  |
| BRASFELS  | SS JURCA       | QO       | 55%                      | 15-Dec-15    | 48                                | 18-Jul-16          |
| BRASFELS  | SS FRADE       | PS       | 55%                      | 21-Dec-16    | 58                                | 16-May-17          |
| BRASFELS  | SS BRACURY     | QO       | 60%                      | 21-Aug-17    | 66                                | 16-Jan-18          |
| BRASFELS  | SS PORTOGALO   | PS       | 60%                      | 21-Apr-18    | 74                                | 16-Sep-18          |
| BRASFELS  | SS MANGARATIBA | QO       | 65%                      | 21-Dec-18    | 82                                | 16-May-19          |
| BRASFELS  | SS BOFINAS     | O        | 65%                      | 21-Aug-19    | 90                                | 16-Jan-20          |
| PARAGUAÇU | NS CRIDINA     | O        | 55%                      | 16-Jul-16    | 48                                | 10-Aug-16          |
| PARAGUAÇU | NS PITUBA      | O        | 55%                      | 12-May-17    | 58                                | 10-Jun-17          |
| PARAGUAÇU | NS BOIPEBA     | O        | 60%                      | 12-Jan-18    | 74                                | 10-Oct-18          |
| PARAGUAÇU | NS INTERLAGOS  | O        | 60%                      | 14-Sep-18    | 82                                | 10-Jun-19          |
| PARAGUAÇU | NS ITAPEMA     | ET       | 65%                      | 12-May-19    | 90                                | 10-Feb-20          |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TDD Report Rev 2

Page 131 of 192



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

|           |                |     |     |           |    |           |
|-----------|----------------|-----|-----|-----------|----|-----------|
| PARAGUAÇU | NS COMANDATUEA | ET  | 65% | 12-Jan-20 | 98 | 10-Oct-20 |
| JURONG    | NS ARPOADOR    | PB  | 55% | 16-Jun-15 | 48 | 13-Jun-15 |
| JURONG    | NS GUARAPARI   | DDF | 55% | 20-Jul-16 | 48 | 20-Jul-16 |
| JURONG    | NS CAMBURI     | SD  | 60% | 28-Dec-16 | 58 | 20-May-17 |
| JURONG    | NS ITAOGA      | DDF | 60% | 28-Aug-17 | 66 | 20-Jan-18 |
| JURONG    | NS ITALUNAS    | SD  | 65% | 28-Apr-18 | 82 | 20-May-19 |
| JURONG    | NS SIRI        | DDF | 65% | 28-Dec-18 | 90 | 20-Jan-20 |
| JURONG    | NS SAFY        | SD  | 65% | 28-Aug-19 | 98 | 20-Sep-20 |
| ECOVIX    | NS CASSINO     | ET  | 55% | 31-May-18 | 48 | 10-Aug-16 |
| ECOVIX    | NS CURUMIM     | ET  | 60% | 31-Mar-17 | 66 | 10-Feb-18 |
| ECOVIX    | NS SALINAS     |     | 60% | 30-Nov-17 | 74 | 10-Oct-18 |

The shortest 48 month durations are indicated in bold red. The key risk yard in this respect will be EEP (Paraguaçu) which is still under construction (it is understood that construction will commence in KHI Japan in June 2013 but this has not been confirmed). In comparison BrasFELS and Jurong have already started construction of their critical DRUs and ERG (Ecovix) are scheduled to commence in March 2013 (it is also understood that ERG are considering construction of the Living Quarters, Drill Floor and Sub / Superstructure in COSCO, China but this has also not been confirmed).

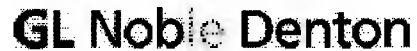


## **16.2 OPERATORS**

Operations and maintenance contracts and asset integrity management contracts are still under negotiation at this stage. Key elements to be monitored going forward will be the recruitment of trained and experienced crews and the handling of strategic spares for each DRU group. Strategic spares are those classed as vital to the commercial operation of the DRU any generally are associated with long lead deliveries and will generally involve the drilling and DP systems.

Overall operator OpEx given at the selection stage are shown below. These figures will be readdressed and updated 12 months prior to operations;





SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

| Rates as of 29.09.2011               |              |              |                |              |              |              |
|--------------------------------------|--------------|--------------|----------------|--------------|--------------|--------------|
|                                      | Seadrill     | Petroserv    | Queiroz Galvão | Odebrecht    | Etesco       | Odfjell      |
| Equity Percentage                    | 30%          | 15%          | 7.5%           | 15%          | 15%          | 20%          |
| OpEx (no operator margin) (no taxes) | 181.02       | 165.24       | 179.60         | 169.89       | 149.49       | 177.45       |
| <b>Overhead Expenses</b>             | <b>97.42</b> | <b>82.60</b> | <b>88.80</b>   | <b>87.00</b> | <b>97.44</b> | <b>68.76</b> |
| Salary + Labor Costs                 | 68.95        | 61.50        | 72.80          | 69.20        | 68.61        | 58.92        |
| Medical Expenses                     | 4.50         | 5.00         | 3.00           | 2.97         | 3.88         | 1.84         |
| Travelling Costs                     | 7.14         | 7.00         | 7.70           | 10.10        | 4.39         | 4.80         |
| Training                             | 4.45         | 4.00         | 3.10           | 5.57         | 2.86         | 2.35         |
| Incentive Fee                        | 12.38        | 5.00         | 1.50           | -            | 7.70         | 0.87         |
| <b>Insurance &amp; Certification</b> | <b>15.19</b> | <b>18.55</b> | <b>11.90</b>   | <b>18.82</b> | <b>11.00</b> | <b>11.64</b> |
| Hull & Machinery                     | 6.38         | 11.70        | 9.00           | 12.85        | 11.26        | 10.50        |
| P&I                                  | 6.38         | 0.54         | 0.60           | 0.89         | 2.50         | 1.00         |
| Personnel                            | 1.42         | 1.80         | 1.30           | -            | 0.10         | 0.14         |
| Certificate and Licenses             | 1.00         | 2.50         | 1.00           | 1.68         | 0.20         | -            |
| <b>Maintenance &amp; Operations</b>  | <b>30.83</b> | <b>42.70</b> | <b>36.20</b>   | <b>35.20</b> | <b>24.79</b> | <b>56.50</b> |
| Technical Assistance Contracts       | 10.65        | 13.30        | 2.00           | 6.91         | 2.31         | 22.50        |
| Consumables                          | 4.24         | 3.40         | 5.00           | 4.89         | 10.12        | 13.00        |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TDD Report Rev 2

Page 134 of 192

**GL Noble Denton**

SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

|  |              |              |              |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Equipment Rental                             | 2.10         | 2.50         | 8.00         | 1.96         | 2.31         | 3.00         |
| <b>Materials</b>                             | <b>13.83</b> | <b>23.50</b> | <b>21.20</b> | <b>21.44</b> | <b>10.03</b> | <b>18.00</b> |
| Spare Parts                                  | 8.03         | 13.00        | 18.00        | 16.00        | 4.99         | -            |
| Drill Column Material and Fishing Tools      | 5.81         | 10.50        | 3.20         | 5.44         | 5.04         | 18.00        |
| Driv-docking                                 | 11.07        | 24.00        | 10.00        | 10.80        | 11.00        | 18.00        |
| Onshore costs (CUSTO FIXO)                   | 7.99         | 14.50        | 27.00        | 21.44        | 12.22        | 10.33        |
| Catering                                     | 6.99         | 5.80         | 9.00         | 7.15         | 5.99         | 6.00         |
| Other  | -            | 1.50         | 9.00         | 2.47         | -            | -            |
| Communication                                | 1.00         | 1.50         | 2.00         | 3.32         | 1.23         | 1.53         |
| Overhead (CUSTO-FIXO)                        | 18.00        | -            | 6.40         | -            | -            | 12.20        |
| <b>Operator Margin (CUSTO FIXO)</b>          | <b>15.00</b> | <b>25.90</b> | <b>26.00</b> | <b>25.00</b> | <b>28.00</b> | <b>20.00</b> |
| A-01 Excl includes Operator Margin, no taxes | 195.02       | 167.14       | 205.80       | 194.89       | 177.49       | 197.45       |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TDD Report Rev 2

Page 135 of 192

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**GL Noble Denton**
**SETE BRASIL DRILLSHIP PROJECTS**  
**TECHNICAL DUE DILIGENCE REVIEW**

| <b>Services Contract Daily Rate Calculation</b>  | <b>Seadrill</b> | <b>Petroserv</b> | <b>QGOG</b>   | <b>OOG</b>    | <b>Etesco</b> | <b>Odfjell</b> |
|--|-----------------|------------------|---------------|---------------|---------------|----------------|
| A-OpEx ( includes Operator Margin)<br>(no taxes) | 196.02          | 191.14           | 205.60        | 194.89        | 177.49        | 197.45         |
| B-Part OpEx transferred to Charter               | -57.34          | -62.64           | -74.20        | -87.19        | -62.99        | -82.84         |
| C-OpEx (for taxation) (A-B)                      | 138.67          | 128.50           | 131.40        | 107.70        | 114.49        | 114.61         |
| D-Taxes (ISS, PIS & COFINS)<br>(11.83% over E)   | 18.61           | 17.24            | 17.63         | 14.45         | 15.36         | 15.38          |
| <b>E-Services Daily Rate (C+D)</b>               | <b>157.28</b>   | <b>145.74</b>    | <b>149.03</b> | <b>122.15</b> | <b>129.86</b> | <b>129.99</b>  |
| <b>Total Operation Costs (E+B)</b>               | <b>214.62</b>   | <b>208.38</b>    | <b>223.23</b> | <b>209.34</b> | <b>192.85</b> | <b>212.83</b>  |

**17 MODEL ASSUMPTIONS****17.1 GENERAL**

To try and put the project into context with other industry projects, the typical expected target dayrate recovery on a DRU cost of USD\$ 700 - 800 million is in the order of 0.1% of the construction cost of the DRUs this gives a target day rate of around USD\$ 700 - 800k per day which is above the current day rate expectations. In comparison, a typical Korean vessel cost is of the order of USD 650 million (see Appendix) and an associated theoretical target dayrate of around USD\$ 650k per day is recommended. Only at the top of the market are these levels achievable and owners will have to accept a somewhat lower value.

For comparison a jack-up at a CapEx of USD\$ 210 - 220 million will ideally charter at around USD\$ 200k per day.

Projected rig values going forward;

| Rig Values - USD Million (2011 dollars) |                    |                    |
|---|--------------------|--------------------|
|   | Semisubmersibles   | Drillships         |
| 2015                                    | USD 550 to USD 650 | USD 550 to USD 650 |
| 2020                                    | USD 525 to USD 700 | USD 525 to USD 725 |
| 2025                                    | USD 475 to USD 750 | USD 475 to USD 775 |
| 2030                                    | USD 425 to USD 775 | USD 425 to USD 800 |

*Source: OGS Petrosale, August 2011.*

Current average global day rates are (highs are of the order USD\$ 620k /day for both types);

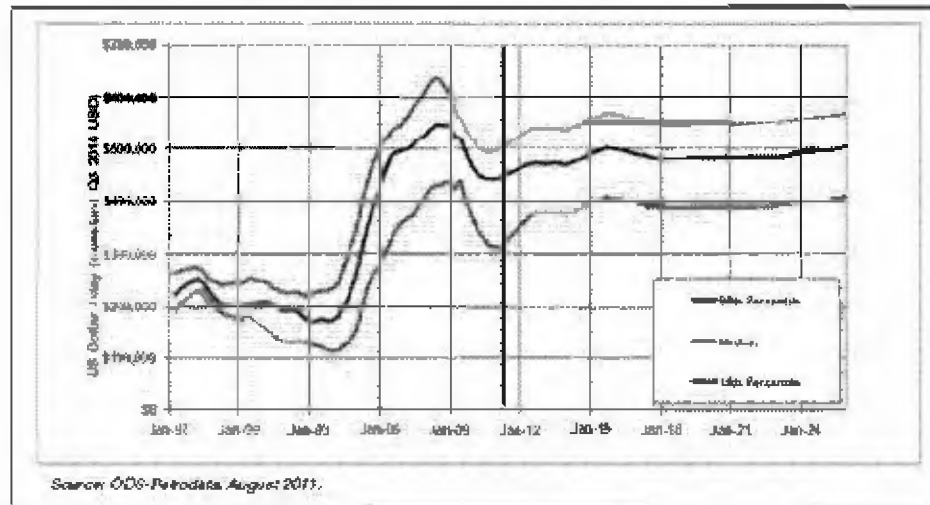
| Rig Type            | Average Day Rate |
|---------------------|------------------|
| Drillship 4000'+ WD | \$457,000        |
| Semi-sub 4000'+ WD  | \$414,000        |

Source RigLogix Nov 2012

It is understood the early DRUs are chartered on rates between USD\$ 458 to 570 per day.

In comparison, the rate recently agreed with Petrobras for the Titanium Explorer is reported to be in the low-\$500s and also contains a performance bonus opportunity of 12.5%.

Future day rates are estimated.



In November of 2012 Brazil was operating at 95 to 96% of its available drillship / semi-submersible assets.

| Region | Current       | Month Ago     | 6 Months Ago  | 1 Year Ago    |
|--------|---------------|---------------|---------------|---------------|
| Brazil | 96.1% (73/76) | 97.4% (74/76) | 86.7% (65/75) | 83.3% (60/72) |

Source Rigzone Nov 2012

## 17.2 SETE

The basic model assumptions made by Sete are as follows

| Item                             | Value     |
|----------------------------------|-----------|
| <b>CapEx</b>                     |           |
| Hulls 1-7                        | USD 690 m |
| Hulls 8-28                       | USD 825 m |
| <b>Utilization</b>               |           |
| Year 1                           | 95%       |
| Years 2-5 onwards                | 97%       |
| <b>1<sup>st</sup> Year Bonus</b> | 5%        |





|                         |                      |
|-------------------------|----------------------|
| <b>Day Rate</b>         |                      |
| Hulls 1-7               | USD 458k / day       |
| Hulls 8-28              | USD 485 - 570k / day |
| <b>Service Rate</b>     | USD 116 / day        |
| <b>Mobilization Fee</b> | USD 30m              |
| <b>Charter Term</b>     | 15 years             |
| <b>OpEx</b>             |                      |

### 17.3 UTILISATION

General industry expected utilization availabilities for this type of vessel are 95% upwards in the first year and 96-98% thereafter. The project is using an expectation of 95 - 97%.

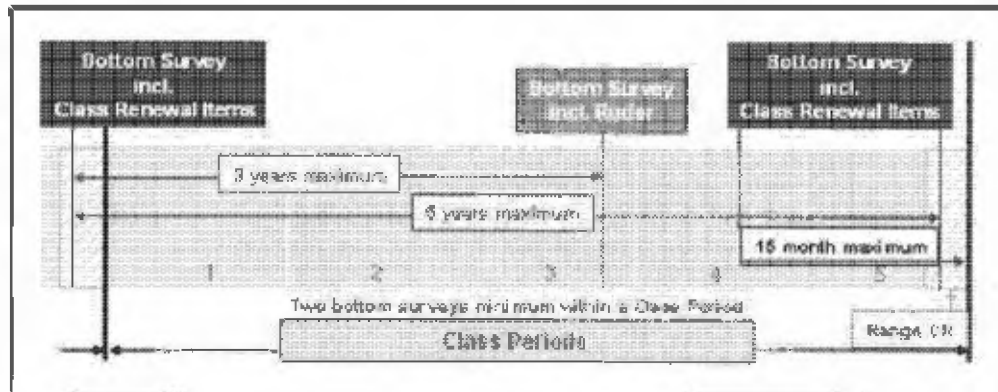
The Petrobras charter gives a zero day rate for any downtime on charter.

### 17.4 OPERATING COST

Typical operating costs for vessels of this type are expected in the order of USD\$ 130k – 150k per day (excluding docking costs) which are usually incurred at the end on the basis of a 5 year charter. In this case the charters will be roughly 15 years so for two docking costs an allowance of USD\$ 12,000 / day (or over USD \$4.3mm / year) has been included in the OpEx. The dockings may be able to be offset by an 'In Water Survey in Lieu' by Class but a lower cost is still involved (in this case 4-5 inspections will be required nominally every 2 ½ years or 36 monthly intervals as a maximum).

This assumes there will be a core of experienced expatriate crew supported by predominantly local crew.

This also assumes that the fuel costs are covered by Petrobras (however they do have a capped limit on this, typically 40m<sup>3</sup> per day which should be sufficient in normal circumstances).

**17.5 CAPEX**

A CapEx of USD\$ 800 million per DRU at the high end of the range for similar specified vessels contracted in the Far Eastern yards (range USD\$ 650 – 700 million) depending upon contracting date. A Korean shipyard order summary is included in the appendix for comparison / reference.

**17.6 DELIVERY / MOBILISATION**

As the yards are in Brazil and the proposed operating locations are in Brazil transit times will be minimal (approximately two days). However, the Far Eastern bare hulls will be significantly longer (see table below). It is understood that the KeppelFELS deliverables will be dry towed and the Jurong KHI hulls will be wet towed.

The Petrobras charter gives allowances for mobilization to charter acceptance. In the general terms of the Petrobras charter is a requirement for a pre-charter acceptance survey at the site of operations but in this case it will be at the shipyard (in Brazil) concerned. This can typically lead to an extended period from vessel acceptance and payment when it is not formally confirmed that the vessel is acceptable to the charterer (although we are not aware of any total rejection to date and in this case the risk has been mitigated due to Petrobras' charter acceptance being conducted at the shipyard). There is however a further provision in the charter whereby if the vessel only meets partial acceptance according to Petrobras' scoring it can commence on charter at a reduced day rate until the deficiency is rectified (this is not an open arrangement and there is an agreed maximum period).

It is understood that one DRU will be built in Kawasaki's yard in Japan and one in Jurong Singapore and one in Keppel FELS Singapore (plus a bare hull in the same yard). These are all part completed units and all DRUs will be completed, delivered and accepted in Brazil.

For these DRUs the transit time for the DRUs to Brazil will be;

| Route                        | Speed (Knots)  | Time (Days) |
|------------------------------|----------------|-------------|
| Japan - Brazil               | 12.5 (powered) | 40          |
| Singapore - Brazil           | 12.5 (powered) | 31          |
| Singapore Brazil (Bare Hull) | 6.5 (towed)    | 60          |

It is noticeable that Petrobras has not reduced its standard charter mobilization fee (which remains at USD\$ 30 million) for the minimal completed DRU transits to site.

## 17.7 CHARTER RATE

The standard Petrobras charter has a fixed adjustment formula for the annual charter rate and this can go either up or down depending upon the state of the industry. This is reflected in the use of standard indexes which are applied in the formulae to generate the charter rate for the following year (we have experience of rigs where the revised charter rate has been lower due to the prevailing market conditions).

## 17.8 SENSITIVITIES

The table below advises typical contingencies and sensitivities for a project of this type and at this stage. Some sensitivities are hypothetical in this case primarily due to the length of charters involved but have been experienced on similar DRUs with a shorter charter period of 3-5 years more prevalent in the industry.

Note we have included sensitivities in order that the robustness of the model can be investigated.

| Item                         | Base              | Contingency       | Sensitivity                              |
|------------------------------|-------------------|-------------------|--|
| <b>Total DRU Cost</b>        | USD\$ 800 million | +USD\$ 40 million | +USD\$ 100 million<br>+USD\$ 200 million |
| <b>Delivery</b>              | 48 months         | +6 months         | +9, +12 months                           |
| <b>Transit</b>               |                   |                   |  |
| Brazil - Brazil              | +2 days           | +0.5 days         | +1 day                                   |
| Japan - Brazil               | +40 days          | +2 days           | +3 days                                  |
| Singapore - Brazil           | +31 days          | +2 days           | +3 days                                  |
| Singapore - Brazil           | +60 days          | +4 days           | +4 days                                  |
| <b>Mobilization</b>          | USD\$ 30 million  | +USD\$ 5 million  | +USD\$ 5 million                         |
| <b>Pre Charter Audit</b>     | USD\$ 15 million  | +USD\$ 1 million  | +USD\$ 1 million                         |
| (including punch list items) |                   |                   |  |



|                                  |                  |                        |                 |
|----------------------------------|------------------|------------------------|-----------------|
| <b>DRU Utilization</b>           |                  |                        |                 |
| Year 1                           |                  | 95%                    | -5%             |
| Years 2-5 onwards                |                  | 98%                    |                 |
| <b>Charter Rate (2012) / day</b> | USD\$ 450k /day  | USD\$ 458k - 570k /day | +/- 10%         |
| <b>OpEx (2012) / day</b>         | USD\$ 120 k /day | +USD\$ 10k /day        | +USD\$ 20k /day |
| <b>OpEx Escalation / annum</b>   | +5%              | +2%                    | +3%             |

However, there is a significant stretch in the construction time already and there is also a time lag between delivery of the DRUs and the date required by Petrobras E&P for the DRUs to commence the charter, see table overleaf;

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| SPE    | Yard       | Yard Handover | Delivery to Petrobras |        |
|--------|------------|---------------|-----------------------|--------|
| SPE 1  | Jurong     | 06/15         | 06/15                 | SPE 1  |
| SPE 2  | EAS        | 02/16         | 03/16                 | SPE 2  |
| SPE 3  | EAS        | 07/16         | 11/16                 | SPE 3  |
| SPE 4  | EAS        | 03/17         | 07/17                 | SPE 4  |
| SPE 5  | EAS        | 11/17         | 03/18                 | SPE 5  |
| SPE 6  | EAS        | 07/18         | 11/18                 | SPE 6  |
| SPE 7  | EAS        | 12/18         | 07/19                 | SPE 7  |
| SPE 8  | BrasFels   | 12/15         | 07/16                 | SPE 8  |
| SPE 9  | BrasFels   | 12/16         | 05/17                 | SPE 9  |
| SPE 10 | BrasFels   | 08/17         | 01/18                 | SPE 10 |
| SPE 11 | BrasFels   | 04/18         | 09/18                 | SPE 11 |
| SPE 12 | BrasFels   | 12/18         | 05/19                 | SPE 12 |
| SPE 13 | BrasFels   | 08/19         | 01/20                 | SPE 13 |
| SPE 14 | EEP        | 07/16         | 08/16                 | SPE 14 |
| SPE 15 | EEP        | 05/17         | 06/17                 | SPE 15 |
| SPE 16 | EEP        | 01/18         | 10/18                 | SPE 16 |
| SPE 17 | EEP        | 09/18         | 06/19                 | SPE 17 |
| SPE 18 | EEP        | 05/19         | 02/20                 | SPE 18 |
| SPE 19 | EEP        | 01/20         | 10/20                 | SPE 19 |
| SPE 20 | Jurong     | 07/16         | 07/16                 | SPE 20 |
| SPE 21 | Jurong     | 12/16         | 05/17                 | SPE 21 |
| SPE 22 | Jurong     | 08/17         | 01/18                 | SPE 22 |
| SPE 23 | Jurong     | 04/18         | 05/19                 | SPE 23 |
| SPE 24 | Jurong     | 12/18         | 01/20                 | SPE 24 |
| SPE 25 | Jurong     | 08/19         | 09/20                 | SPE 25 |
| SPE 26 | Rio Grande | 05/16         | 08/16                 | SPE 26 |
| SPE 27 | Rio Grande | 03/17         | 02/18                 | SPE 27 |
| SPE 28 | Rio Grande | 11/17         | 10/18                 | SPE 28 |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013

File: Sete Brasil DRU TDD Report Rev 2

Page 143 of 192

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Signed:

A handwritten signature in black ink, appearing to read 'John Tate', written over a horizontal line.

John Tate

Director Technical Due Diligence

Countersigned:

A handwritten signature in black ink, appearing to read 'Craig Reid', written over a horizontal line.

Craig Reid

Vice President of Marine Consulting Americas

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## **APPENDICES**

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## **APPENDIX A LIST OF DOCUMENTS REVIEWED**



The following documents released via the dedicated Intralinks website have been reviewed:

- Company Presentations
- EPC Contracts
- DRU Specifications
- Construction Management Agreements
- Tender Co-operation Agreements
- Consortia Agreements
- Charters
- Service Agreements
- Operators' shortlist



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## **APPENDIX B GLOSSARY OF ABBREVIATIONS**

|       |   |
|-------|---|
| ABS   | American Bureau of Sipping                            |
| ANP   | Agencia Nacional do Petroleo                          |
| AUM   | Assets Under management                               |
| BDU   | Bare Deck Unit  |
| BFE   | Builder's Furnished Equipment                         |
| BOP   | Blow Out Preventer                                    |
| CCTV  | Close Circuit Television                              |
| CMA   | Construction Management Agreement                     |
| CoG   | Centre of Gravity                                     |
| COSCO | China Ocean Shipping Company                          |
| DCC   | Document Control Clerk                                |
| DCN   | Design Change Notice                                  |
| DNB   | DNB Bank ASA  |
| EAS   | Estaleiro Atlântico Sul Shipyard                      |
| EEP   | Enseada Paraguaçu Shipyard                            |
| EJA   | Estaleiro Jurong Aracruz Shipyard                     |
| EPC   | Engineer, Procure & Construct                         |
| EPIC  | Engineer, Procure, Construct, Install & Commission    |
| ERG   | Estaleiro Rio Grande 2 Shipyard (Ecovix)              |
| FAT   | Factory Acceptance Test                               |
| HSE   | Health & Safety Executive                             |
| HVAC  | Heating Ventilation Air Conditioning                  |
| IACS  | International Association Of Classification Societies |
| IHIMU | Ishikawajima Heavy Industries Marine United           |
| ISO   | International Standards Organization                  |
| KF    | Keppel FELS   |



|      |                                |
|------|--------------------------------|
| KHI  | Kawasaki Heavy Industries      |
| MTO  | Material Take Off              |
| NDT  | Non Destructive Testing        |
| OFE  | Owner's Furnished Equipment    |
| OOG  | Odebrecht Oleo e Gas           |
| PO   | Purchase order                 |
| QGOG | Queiroz Galvão Óleo e Gás S.A. |
| ROV  | Remotely Operated Vehicle      |
| SPC  | Special Purpose Company        |
| SS   | Sub Sea                        |

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## **APPENDIX C IDENTIFIED RISKS & MITIGANTS**

**SETE**

Sete has identified the following risks and mitigants at this stage of the project going forward;

**Construction & Engineering**

- Strict technical selection of experienced shipyards and shipyards associated with a technical partner with proven reputation in the construction of offshore vessels
- Use of an existing design (not a Brazilian or Petrobras design) with a proven success track record
- Approximately 40% the total CapEx is sourced internationally from experienced suppliers
- The EPC contracts are turnkey with fixed-price and date-certain
- Constant Supervision Agreements with Petrobras and operators to supervise the entire construction process
- Sete Brasil's management team includes a construction management staff to supervise the construction process
- Each shipyard is assembling identical units, thus increasing productivity and experience is expected
- EPC contracts include ~10% Performance Bond (Parent Company Guarantee plus SBLCs or FGCN Performance Guarantee)

**Delay**

- EPC contracts include Delay Liquidated Damages ("LDs") clause of up to 10% of the contract's value
- Adequate construction period (4 years for the delivery of the first rig)
- Early signing of EPC agreements and Letters of Intent with all yards providing a significant 6-month (average) difference between handover from the yard and the contractual delivery date to Petrobras
- 29 rig portfolio allows the Company to better manage delays and eventually swap assets to meet delivery
- FGCN insurance cover delay risk for lender

**Cost Overrun**

- Use of an existing design, or an evolution of an existing design, with a proven success track record (field proof)
- Approximately 40% the total CapEx is sourced internationally from experienced suppliers and the same used by the other offshore shipyards
- The EPC contracts are turnkey with fixed-price and date-certain
- Change orders required by Petrobras can only take with the consent of Sete Brasil (Board of Directors)
- Constant supervision of the construction process



- Hiring of insurances of BAR insurance (Builders All Risk)
- The proposed financial structure allows the SPCs and Petrobras to benefit fully from REPETRO, thus Sete Brasil is less impacted an increase in taxes
- Contingency Reserve Account (US\$ 22m per rig)
- Multiple rigs per yard allow for learning curve

#### Operational Performance

- Association with quality operators (proven experience in the operation of deep and UDW rigs)
- Possibility of replacing operator in case of poor performance
- DSRA equivalent to three-months
- Performance Reserve Account (US\$ 8m per rig) will be constituted in the form of a "pool" shared by all SPCs and centralized at Sete International
- Portfolio Financing structure, where performing SPCs can support underperforming SPCs
- Additionally, the operators will be the Class B investor and therefore has the added incentive to achieve high levels of uptime, as it will benefit as a shareholder and from the uptime bonus in the Service Contract
- No direct operating risk exposure to Sete Brasil

#### Environmental

- Offshore drilling rig operations are subject to stringent and comprehensive international, federal, regional, state and local laws and regulations
- State-of-the-art deepwater rigs and its design meet the current environmental and safety standards of this type of equipment
- Brazilian oil and gas business is subject to extensive regulations by several governmental agencies, including the National Agency for Oil and Gas ("ANP"), the Brazilian Navy and the Brazilian Authority for Environmental Affairs and Renewable Resources ("IBAMA"). Drilling operations are also subject to federal regulations of National Council for the Environment ("CONAMA")
- During the operation of the rigs, Petrobras has supervisory personnel on board of each vessel. To this end, Petrobras also requires all its contractors to use standard procedures developed by the company and ongoing training of all employees and third parties
- The operation must follow the rules and policies of IBAMA, CONAMA and MARPOL
- The Charter Contract determines that in the event of oil spills or other wastes in the sea, the SPCs will respond, to the limit of US\$ 1 million per event





- Petrobras is responsible for obtaining all the needed environmental licenses for the operation of the drilling rigs, Sete Brasil and the operators are not the parties receiving the licenses
- Lastly, financiers (ECAs and Commercial Banks) will require compliance of the Project with all environmental and social obligations to which it is subject under the law and the prevailing social and environmental standards set by the Equator Principles

These adequately address the key initial risks but a live risk register is required to be kept for the duration of the project to clear redundant risks as the project moves forward through each stage of the project and monitor / control new risks and mitigants as they arise.

#### GLND

| POTENTIAL RISK                 | MITIGATION   |
|--------------------------------|--|
| <b>GENERAL</b>                 | Individual participant risk registers<br>Risk ownership identified<br>Project Execution plan should be developed to easily detail project methodology and control internally and to 3 <sup>rd</sup> parties going forward                |
| <b>CMA</b>                     |  |
| Interface management           | Dedicated interface procedures and formal meetings, interface ownership<br>Requirement for monthly reporting   |
| Delivery OFE items             | Minimal OFE provision, limited generally to drill pipe and riser<br>Will be purchased by operator but included in CAPEX  |
| FEED Design Basic              | Completed and frozen in all cases  |
| Technical Specification Detail | Review and acceptance by charterer   |
| Contract variations            | Keep to a minimum<br>Control where cost involved.<br>Variation approval is retained at a high level within the CMA   |
| Payment                        | In most cases payment is based on actual work completed assessment with associated ownership title transfer. This is a more complicated program when compared to the usual milestone payment with title transfer on delivery. The intent |
| Guarantee Dispute              | BFE approach simplifies this risk greatly shipyards responsible throughout as sole point of recourse   |
| Project drift                  | Detailed project planning with formal review and reporting   |



| POTENTIAL RISK                 | MITIGATION   |
|--------------------------------|--|
|                                | Requirement from the shipyards to provide integrated planning schedules to at least Level 4 with input from all manufacturers and contractors.                                       |
| Quality                        | Use of Petrobras tried and tested quality procedures adopted   |
| Dispute                        | Law / Arbitration, New York State  |
| Performance                    | Comprehensive monthly progress reporting requirement with weighted performance criteria.   |
|                                |  |
| <b>SHIPYARDS</b>               |  |
| Interface management           | Dedicated interface procedures and formal meetings, interface ownership  |
| Design / construction drawings | Ongoing at the moment<br>Shipyards should be encouraged to supply full list of drawings to be produced together with submission dates  |
| Subcontractor availability     | Sporadic backup available from local contractors to select from<br>Close monitoring of training scheme is therefore required   |
| Performance                    | Regular performance meetings and reporting   |
| Quality                        | Use of ISO 9001 formal procedures with internal and external auditing only in some shipyards<br>All shipyards should be encouraged to obtain ISO 9001, 14001 and 18001 accreditation |
| Purchase of materials / BFE    | Access to Shipyards to confirm adequate detail pre ordering  |
| Project drift                  | Planning and progress reporting<br>Change to 3 shift working   |
| Loss Key Personnel             | Subcontracting   |
| Dispute                        | Arbitration, English law   |
| Delivery                       | Site team in attendance during construction<br>Regular progress reporting  |
| Progress monitoring            | Planning and progress reporting  |

| SHIPYARD  | COMPARATIVE RISK RANKING* |
|-----------|---------------------------|
| BRAS FELS | 1                         |
| ERG       | 2                         |
| EJA       | 3                         |
| EEP       | 4                         |
| EAS       | 5                         |

\*Higher number higher risk

The nominal overall shipyard project risk using basic Monte Carlo Analysis ranges from 0.0005 to 0.02004 (1 to 5 ranking) and overall are defined in the Low to Medium range.

| Risk | Consequence      | Minimum | Mean   | Maximum |
|------|------------------|---------|--------|---------|
|      | Negligible       |         |        |         |
| VL   | Almost no effect | 0.0001  | 0.0001 | 0.0006  |
| L    | Minor effect     | 0.0009  | 0.0080 | 0.0166  |
| M    | Moderate effect  | 0.0240  | 0.1634 | 0.5458  |
| H    | Major effect     | 0.8378  | 1.9723 | 4.3823  |
| VH   | No go            | 4.8776  | 6.0181 | 9.5168  |

**Shipyard Areas Considered in the Analysis**

| PROJECT           | CONSTRUCTION                  |
|-------------------|-------------------------------|
| Management        | Team                          |
| Experience        | Experience                    |
| Organization      | Organization                  |
| Risk Control      | Procedures                    |
| Interface Control | Yard                          |
|                   | Management                    |
| <b>SCHEDULE</b>   | Experience                    |
| Detail Level      | Organization                  |
| Design            | Financial Status              |
| Purchasing        | Industrial Relations          |
| Construction      | Planning / Production Control |
| Transportation    | Quality Control               |
| Installation      | Resource Stream               |
| Inter dependents  | Safety                        |
| Critical Path     | Security                      |
|                   | Performance record            |
| <b>DESIGN</b>     | Workload                      |
| Status            | Sub-contracting               |
| Team              | Construction Strategy         |
| Organization      | Payment Milestones            |
| Proven / Novel    | Milestones v Value            |
| Experience        | Commissioning                 |
| Risk Control      | Manpower                      |

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|                    |                          |
|--------------------|--------------------------|
| Interface Control  |                          |
| Specification      | <b>PURCHASING</b>        |
| Equipment          | OFE / BFE                |
| Makers             | Manufacturer or Licensee |
| Proven / Prototype | Country of manufacture   |
| Guarantees         | Purchase Orders          |
|                    |                          |
|                    | <b>INSURANCES</b>        |
|                    | Liability / Indemnity    |
|                    | Asset                    |
|                    | Builder's                |

Key risk areas for highest risk yards are highlighted in red

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## **APPENDIX D PROJECT CONTROL DOCUMENTATION / REPORTING**

**CMA Petrobras** procedures, plans and reporting for the management of the Sete Drillship EPC contracts:

**Management procedure Plans, updated every three months:**

- Procedures for Compliance with the Brazilian Local Content Requirement (Exhibit VI)
- Scope Management Plan
- Cost Management Plan
- Communication Management Plan
- Risk Management Plan
- Staffing Management Plan (Human Resource and Allocation)
- Time Schedule Management Plan
- Engineering Services Management Plan
- Construction & Assembly Management Plan
- Procurement Management Plan
- Quality Management Plan
- Commissioning and Systems Transfer Management Plan
- HSE Management Plan

**The main tools are:**

- "Bid Status" follow-up spreadsheet of the procurement of material and equipment (updated weekly)
- Time schedule in "Primavera" for activities and milestones (updated weekly)
- Integrated Time- Scope- Risk Management System (updated weekly)
- Risk Management System (updated monthly)
- Physical and Financial "S" curves (updated monthly)
- Integrated Management System of the documentation of large projects (updated weekly)
- Task Sheet System (updated weekly)
- Follow-up spreadsheet System (updated weekly)

**The Major Reports issued are:**

- Monthly Report (issued monthly)
- Local Content Report (issued monthly)
- Follow-Up Report (issued weekly)

**The regular meetings are:**

- Contract Coordination Meeting (weekly)
- Planning and Control Meeting (weekly)
- Design and Engineering Meeting (weekly)
- Procurement Meeting (weekly)
- Contract Performance Follow-Up Meeting (monthly)
- Steering Committee Meeting ( every 14 days)
- Risk Management Meeting (quarterly)



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TECHNICAL DUE DILIGENCE REVIEW**

---

## **APPENDIX E MONTHLY DRU REPORT CONTENTS**



## TABLE OF CONTENTS

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>GENERAL INFORMATION</b>                                       | <b>5</b>  |
| <b>2</b> | <b>PROJECT MANAGEMENT</b>  | <b>5</b>  |
| 2.1      | EXECUTIVE SUMMARY  | 5         |
| 2.2      | HIGHLIGHTS & MANAGEMENT OVERVIEW                                 | 6         |
| 2.3      | MAIN EVENTS & MEETINGS DURING THE PERIOD                         | 6         |
| 2.4      | PROGRESS TABLE   | 6         |
| 2.5      | STATUS OF MAIN MILESTONES  | 7         |
| 2.6      | STATUS OF CRITICAL ISSUES  | 7         |
| 2.7      | MAIN CORRESPONDENCES WITH COMPANY DURING THE PERIOD              | 8         |
| 2.8      | PROJECT MONTHLY LOOK AHEAD                                       | 8         |
| <b>3</b> | <b>GENERAL PLANNING &amp; CONTROLLING REPORTS</b>                | <b>8</b>  |
| 3.1      | CORRECTIVE ACTIONS AND PLANS                                     | 8         |
| 3.2      | PROGRESS FORECAST  | 8         |
| 3.3      | MONTHLY AND CUMULATIVE S-CURVES                                  | 8         |
| 3.4      | PROJECT METRICS  | 10        |
| 3.5      | CRITICAL PATH AND ANALYSIS                                       | 10        |
| 3.6      | RESOURCE LOADED SCHEDULE (RLS) INCLUDING ALL SUB-<br>CONTRACTORS | 11        |
| <b>4</b> | <b>HSE &amp; QA</b>  | <b>11</b> |
| 4.1      | HEALTH, SAFETY AND ENVIRONMENT – GENERAL MATTERS                 | 11        |
| 4.2      | HSE REVIEWS & AUDITS   | 12        |
| 4.3      | HSE & SECURITY INCIDENTS TO DATE                                 | 13        |
| 4.4      | INCIDENTS & FREQUENCY RATES                                      | 13        |
| 4.5      | QA / QC SYSTEM   | 15        |
| 4.6      | KEY PERFORMANCE INDICATORS                                       | 17        |
| <b>5</b> | <b>ENGINEERING</b>   | <b>18</b> |
| 5.1      | GENERAL ENGINEERING DESIGN WORK PLAN                             | 18        |
| 5.2      | ENGINEERING LOOK-AHEAD   | 19        |
| 5.3      | PUNCH LIST KEY ITEMS   | 20        |
| 5.4      | Contractor TQR STATUS SUMMARY                                    | 20        |
| 5.5      | SUB-CONTRACTORS & VENDORS DOCUMENTATION STATUS                   | 20        |
| <b>6</b> | <b>PROCUREMENT AND LOGISTICS</b>                                 | <b>21</b> |
| 6.1      | BID STATUS   | 21        |



|           |   |           |
|-----------|---|-----------|
| 6.2       | PO STATUS   | 21        |
| 6.3       | EXPEDITING REPORT                                   | 22        |
| 6.4       | VENDOR INSPECTION PLAN                              | 22        |
| 6.5       | MATERIAL STATUS REPORT                              | 22        |
| 6.6       | PROCUREMENT LOOK-AHEAD                              | 23        |
| 6.7       | GENERAL TOPICS, AREAS OF CONCERN                    | 23        |
| 6.8       | MATERIAL COMPLETION / DELIVERY                      | 23        |
| <b>7</b>  | <b>BRAZILIAN CONTENT PLAN</b>                       | <b>24</b> |
| 7.1       | CALCULATION OF NATIONALIZATION INDEX                | 24        |
| 7.2       | MONTHLY LOCAL CONTENT EVALUATION REPORT             | 24        |
| <b>8</b>  | <b>CONSTRUCTION</b>                                 | <b>25</b> |
| 8.1       | DETAILED CONSTRUCTION AND ASSEMBLY PROGRESS         | 25        |
| 8.2       | MANPOWER RESOURCES                                  | 26        |
| <b>9</b>  | <b>COMPLETION</b>                                   | <b>26</b> |
| 9.1       | STRUCTURAL WORKS                                    | 26        |
| 9.2       | STRUCTURAL ONGOING FABRICATION WORKS                | 27        |
| 9.3       | PIPING WORKS SUMMARY                                | 27        |
| <b>10</b> | <b>OFFSHORE WORKS &amp; INSTALLATION ACTIVITIES</b> | <b>28</b> |
| <b>11</b> | <b>COMMERCIAL &amp; CONTRACTUAL ISSUES</b>          | <b>28</b> |
| 11.1      | CONTRACTUAL ISSUES                                  | 28        |
| 11.2      | CONTRACT AMENDMENTS SUMMARY                         | 28        |
| 11.3      | FINANCIAL MILESTONES COMPLETION                     | 28        |

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**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

---

## **APPENDIX F    SAMPLE PROJECT EXECUTION PLAN INDEX**



## **PROJECT EXECUTION PLAN SAMPLE CONTENTS**

|     |   |    |
|-----|---|----|
| 1.  | Introduction.....   | 3  |
| 2.  | Project Objectives.....   | 4  |
| 3.  | Organization, Administration and Reporting.....                 | 6  |
| 4.  | Interface Management.....                                       | 7  |
| 5.  | Safety Incident Reporting.....                                  | 8  |
| 6.  | Quality.....  | 9  |
| 7.  | Procurement, Subcontracting and Material Handling.....          | 10 |
| 8.  | Cost Control, Schedule, Progress Measurement and Invoicing..... | 11 |
| 9.  | Change Control.....   | 12 |
| 10. | Risk Management.....  | 12 |
| 11. | Mechanical Completion and Acceptance.....                       | 13 |

### **Appendices;**

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TECHNICAL DUE DILIGENCE REVIEW

---

## **APPENDIX G MSC GUSTO REFERENCE LISTS**





## Drillships

Page 20 of 192

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 SETE BRASIL DRILLSHIP PROJECTS  
 TECHNICAL DUE DILIGENCE REVIEW

## Semi-submersibles



## GustoMSC Reference List

| EXPLORATION                      |            |      |                               |                            |
|----------------------------------|------------|------|-------------------------------|----------------------------|
| SEMI-SUBMERSIBLES                |            |      |                               |                            |
| Drill name at drill              | IMO        | Year | Operator                      | Current Owner/Operator     |
| Marinas *                        | 255380     | 2018 | Brasfels                      | Sete/Queiroz Galvao P.     |
| Wangerotiba *                    | 255380     | 2018 | Brasfels                      | Sete/Queiroz Galvao P.     |
| Grade *                          | 255380     | 2018 | Brasfels                      | Sete/Petroserv             |
| Marinas *                        | 255380     | 2017 | Brasfels                      | Sete/Queiroz Galvao P.     |
| Portogalo *                      | 255380     | 2016 | Brasfels                      | Sete/Petroserv             |
| T.B.N. *                         | 255380     | 2015 | Brasfels                      | Urdo Drilling              |
| Alpha Star                       | 255380     | 2011 | Keppel FELS                   | Queiroz Galvao Perfuracoes |
| Beta                             | 255380     | 2011 | Keppel FELS                   | Queiroz Galvao Perfuracoes |
| Maersk Deliverer                 | 255321     | 2010 | Keppel FELS                   | Maersk Drilling            |
| Alpha Vix                        | 255321     | 2010 | IMAC Shipyard                 | Odebrecht                  |
| Long Star                        | 255200     | 2010 | IMAC Shipyard                 | Queiroz Galvao Perfuracoes |
| Gold Star                        | 255380     | 2009 | Keppel FELS                   | Queiroz Galvao Perfuracoes |
| Development Driller              | 255341     | 2009 | Keppel FELS                   | Transocean                 |
| Maersk Discoverer                | 255321     | 2009 | Keppel FELS                   | Maersk Drilling            |
| Maersk Developer                 | 255321     | 2008 | Keppel FELS                   | Maersk Drilling            |
| Maersk Explorer                  | 255320     | 2008 | Keppel FELS                   | Maersk Drilling            |
| West Alliance                    |            | 2008 | Keppel FELS                   | Seadrill                   |
| Gafun Express (DP/Moored)        | SPR 7500   | 2000 | PRR Splayard                  | Transocean                 |
| PRSC 7500                        |            | 2000 | Freder & G. H. H. H.          | Transocean                 |
| Marlen Energy (DP/Moored)        |            |      | Dir des Constructions Navales | Transocean                 |
| Nedon Express (DP/Moored)        | SPR 7500   | 2000 | UCN                           | Transocean                 |
| West Pelaut                      |            | 1995 | Fat Fast Livingston           | Seadrill                   |
| COMPLETION                       |            |      |                               |                            |
| Atwood Falcon (Upgrade)          |            | 2009 | Alabamba                      | Atwood Oceanics            |
| Noble Ovide-Boudreaux (Upgrade)  |            | 2006 | Vyborg/Signa                  | Noble Drilling             |
| Noble Homer Ferrington (Upgrade) |            | 2005 | Vyborg/TCI Halter             | Noble Drilling             |
| Atwood Eagle (Upgrade)           |            | 2001 | Alabamba                      | Atwood Oceanics            |
| Atwood Hunter                    |            | 2001 | Alabamba                      | Atwood Oceanics            |
| Noble Pac 13000                  |            | 1999 | Ingalls/TOI                   | Noble Drilling             |
| Rafe Gothic                      | ODN TAY 21 | 1999 | Keppel Fels                   | Odebrecht Oil & Gas        |
| Noble Ames                       |            |      | Ingalls/HAM                   | Noble Drilling             |
| Noble Pac 13000                  |            | 1998 | Ingalls/HAM                   | Noble Drilling             |
| Noble Pac 13000                  |            | 1998 | Ingalls/HAM                   | Noble Drilling             |

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**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

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## **APPENDIX H    SETE VESSEL SUMMARY LIST**



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

## Drillships

| CONTRACTOR / Name       | Design      | Water (ft) | Drill (ft) | SHIPYARD                      | Delivery |
|-------------------------|-------------|------------|------------|-------------------------------|----------|
| Etesco Cassino          | Gusto12000  | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2016     |
| Etesco Curimim          | Gusto 12000 | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2017     |
| Etesco Salinas          | Gusto12000  | 10,000     | 40,000     | Estaleiro Rio Grande 2 Brazil | 2018     |
| Etesco Comandatuba      | Gusto12000  | 10,000     | 40,000     | Estaleiro Rio Grande 2 Brazil | 2020     |
| Odebrecht Pituba        | Gusto12000  | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2017     |
| Odebrecht Boipeba       | Gusto12000  | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2018     |
| Odebrecht Interlagos    | Gusto12000  | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2019     |
| Odebrecht Itapema       | Gusto12000  | 10,000     | 40,000     | Enseada Paraguaçu Brazil      | 2019     |
| Odfjell Guarapari       | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2015     |
| Odfjell Itaoca          | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2018     |
| Odfjell Siri            | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2018     |
| SeaDrill Ltd.Camburi    | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2016     |
| SeaDrill Ltd.Itaunas    | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2017     |
| SeaDrill Ltd.Sahy       | Espadon     | 10,000     | 40,000     | Jurong Aracruz Brazil         | 2019     |
| Sete Brasil Arpoador    | S12000E     | 10,000     | 35,000     | Atlântico Sol Brazil          | 2015     |
| Sete Brasil Copacabana, | S12000E     | 10,000     | 35,000     | Atlântico Sol Brazil          | 2015     |

Report No: L-26369, Revision: 2, Dated: 7<sup>th</sup> March, 2013  
File: Sete Brasil DRU TDD Report Rev 2

Page 23 of 192

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**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

|                       |         |        |        |                      |      |
|-----------------------|---------|--------|--------|----------------------|------|
| Sete Brasil Grumari   | S12000E | 10,000 | 35,000 | Atlántico Sol Brazil | 2016 |
| Sete Brasil Ipanema   | S12000E | 10,000 | 35,000 | Atlántico Sol Brazil | 2016 |
| Sete Brasil Leblon    | S12000E | 10,000 | 35,000 | Atlántico Sol Brazil | 2017 |
| Sete Brasil Leme      | S12000E | 10,000 | 35,000 | Atlántico Sol Brazil | 2017 |
| Sete Brasil Marambaia | S12000E | 10,000 | 35,000 | Atlántico Sol Brazil | 2018 |

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SETEBRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

**Semi-submersibles**

| <b>CONTRACTOR / Name</b>         | <b>Design</b> | <b>Water (ft)</b> | <b>Drill (ft)</b> | <b>SHIPYARD</b> | <b>Delivery</b> |
|----------------------------------|---------------|-------------------|-------------------|-----------------|-----------------|
| Queiroz Galvao Perf. Urca        | FELS DSS 38E  | 10,000            | 33,000            | Keppel Brazil   | 2015            |
| Queiroz Galvao Perf. Bracuhy     | FELS DSS 38E  | 10,000            | 33,000            | Keppel Brazil   | 2017            |
| Queiroz Galvao Perf. Mangaratiba | FELS DSS 38E  | 10,000            | 33,000            | Keppel Brazil   | 2018            |
| Ventura Portogalo                | FELS DSS 38E  | 10,000            | 33,000            | Keppel Brazil   | 2016            |
| Ventura Frade                    | FELS DSS 38E  | 10,000            | 33,000            | Keppel Brazil   | 2018            |



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**APPENDIX I      PETROBRAS CHARTER&EPC ANNUAL  
ADJUSTMENT**

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|                          |                          |
|--------------------------|--------------------------|
| <b>Charter Agreement</b> | Adjustment Date          |
|                          | Base date for Adjustment |

$$FRP = \left[ \frac{CPI}{CPI_0} \right]$$

|                  |   |   |
|------------------|---|---|
| CPI              | = | CPI - US Bureau of Labor Statistics Data (code CUUR0000SA0) |
| CPI <sub>0</sub> | = | CPI - US Bureau of Labor Statistics Data at proposal month  |

|                    |                   |
|--------------------|-------------------|
|                    | Adjustment Factor |
|                    | (R\$)             |
| @ Base Date - US\$ | US\$              |

|                           |                          |
|---------------------------|--------------------------|
| <b>Services Agreement</b> | Adjustment Date          |
|                           | Base date for Adjustment |

$$PCR = PCI \left[ 0,50 \frac{INS}{INS_0} + 0,20 \frac{IPAMQ}{IPAMQ_0} + 0,30 \frac{TXC}{TXC_0} \right]$$

|                  |   |  |
|------------------|---|--|
| INS              | = | INPC - IBGE (code A1004964)              |
| INS <sub>0</sub> | = | INPC - IBGE (code A1004964) at base date |
| MEQ              | = | IPA-EP - FGV (code 1004812)              |
| MEQ <sub>0</sub> | = | IPA-EP - FGV (code 1004812) at base date |

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TECHNICAL DUE DILIGENCE REVIEW

|      |   |  |
|------|---|--|
| TXC  | = | Average USD sale exchange rate on day 15 of the adjustment month |
| TXCo | = | Average USD sale exchange rate on day 15 of the base month       |

@ Base Date - US\$

US\$

### Operator O&M Expenses

Base date for Adjustment

$$PCR = PCR \left[ 0,50 \frac{INS}{INS_0} + \beta \cdot 0,20 \frac{IPAMQ}{IPAMQ_0} + 0,30 \frac{TXC}{TXCo} \right]$$

|                  |   |  |
|------------------|---|--|
| INS              | = | INPC - IBGE (code A1004964)                                      |
| INS <sub>0</sub> | = | INPC - IBGE (code A1004964) at base date                         |
| MEQ              | = | IPA-EP - FGV (code 1004812)                                      |
| MEQ <sub>0</sub> | = | IPA-EP - FGV (code 1004812) at base date                         |
| TXC              | = | Average USD sale exchange rate on day 15 of the adjustment month |
| TXCo             | = | Average USD sale exchange rate on day 15 of the base month       |

@ Base Date - US\$

US\$

Definitions are details in the Charter document

## EPC Contract Reais element;

$$PM = \left( PO \times \left( \alpha 1 \times \left( \frac{ICSPn}{ICSPo} \right) + \alpha 2 \times \left( \frac{IGP - DIn}{IGP - DIo} \right) \right) \right)$$

Where:

**PM:** Monthly Amount in Brazilian currency Reais (R\$).

**PO:** Portion of Contract Price subject to payments in Brazilian Reais (R\$) and included in the Measurement Report.

**$\alpha 1$ :** coefficient calculated by *Fundação Getúlio Vargas – FGV*, representing the weight of production costs in the typical sales Price for the drilling rig industry in the Brazilian market ( $\alpha 1=0.8$ ).

**$\alpha 2$ :** coefficient calculated by *Fundação Getúlio Vargas – FGV*, representing the weight of non production costs, including overhead, in the typical sales Price for the drilling rig industry in Brazilian market ( $\alpha 2= 0.2$ ).

**ICSPn:** Definitive value of the Price Index corresponding to the Brazilian Drilling Rig Building, for the month immediately preceding the month to which the adjustment is due, calculated by *Fundação Getúlio Vargas - FGV*

**ICSPo:** Definite value of the Price Index corresponding to the Brazilian drilling rig industry for the month immediately preceding the month in which the Contractor Commercial Proposal was submitted, calculated by *Fundação Getúlio Vargas - FGV*

**IGP-DIn:** Definitive value of the General Price Index on Internal Availability ("Índice Geral de Preços – Disponibilidade Interna") for the month immediately preceding the month to which the adjustment is due, calculated by *Fundação Getúlio Vargas - FGV*

**IGP-DIo:** General Price Index on Internal Availability ("Índice Geral de Preços – Disponibilidade Interna") for the month immediately preceding the month in which the Contractor Commercial Proposal was submitted, calculated by *Fundação Getúlio Vargas - FGV*

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## **APPENDIX J SEADRILL FLEET SUMMARY**

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**EIG KEP 00026179**



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## **APPENDIX K ODEBRECHT FLEET SUMMARY**



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TECHNICAL DUE DILIGENCE REVIEW

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**NORBEVI**

Semi-submersible drilling rig, capable of operating in water depths of up to 2,400m

**NORBEVIII**

Drillship, capable of operating in water depths of up to 3,000m

**NORBEIX**

Drillship, capable of operating in water depths of up to 3,000m

**ODNI**

Drillship capable of operating in water depths of up to 3,000m

**ODNIII**

Drillship capable of operating in water depths of up to 3,000m

**ODNDELBAIII**

Semi-submersible drilling rig capable of operating in water depths of up to 2,400m

**ODNTAYIV**

Semi-submersible drilling rig capable of operating in water depths of up to 2,400m

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TECHNICAL DUE DILIGENCE REVIEW**

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## **APPENDIX L ODFJELL / QGOG FLEET SUMMARY**



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TECHNICAL DUE DILIGENCE REVIEW

## **ODFJELL**

### **DEEPSEA ABERDEEN**

Odfjell Drilling has been awarded a significant contract award with BP for the provision of a new build, semi-submersible drilling unit for use in the UK's West of Shetland region.

### **DEEPSEA ATLANTIC**

Deepsea Atlantic was delivered in 2009. This is a sixth generation ultra deepwater and harsh environment semi-submersible.

### **DEEPSEA STAVANGER**

Deepsea Stavanger was delivered in 2010. This is a sixth generation ultra deepwater and harsh environment semi-submersible.

### **DEEPSEA BERGEN**

Deepsea Bergen is a self-propelled semi-submersible unit of enhanced Aker H-3.2 operating at the Norwegian Continental Shelf (NCS).

### **DEEPSEA METRO I**

Deepsea Metro I was delivered in 2011. This is an ultra-deep water drillship of Gusto Design.

### **DEEPSEA METRO II**

Deepsea Metro II was delivered in 2011. This is an ultra-deep water drillship of Gusto Design.

## **QGOG**

### **ALASKAN STAR**

A midwater semi-submersible drilling rig which was originally constructed in 1976 and marked the Company's entrance into the offshore drilling business in 1994. An upgrade of the Alaskan Star was completed in December 2010. The rig is capable of drilling in water depths of up to 1,700 feet and has a drilling depth capacity of up to 25,000 feet.

### **ATLANTIC STAR**

A midwater semi-submersible drilling rig which was originally constructed in 1976 and was acquired by the Company in 1997. An upgrade of the Atlantic Star was completed in February 2011. The rig is capable of drilling at water depths of up to 2,000 feet and has a drilling depth capacity of up to 21,320 feet.



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TECHNICAL DUE DILIGENCE REVIEW

#### **OLINDA STAR**

A deepwater semi-submersible drilling rig that was originally constructed in 1983 and underwent an upgrade which was concluded in August 2009. The rig is capable of drilling at water depths of up to 3,600 feet and has a drilling depth capacity of up to 24,600 feet.

#### **GOLD STAR**

An ultra-deepwater DP semi-submersible drilling rig that started its operations in February 2010. The rig is capable of drilling in waters depths of up to 9,000 feet and has a drilling depth capacity of up to 30,000 feet. Gold Star is equipped to operate in the pre-salt.

#### **LONE STAR**

An ultra-deepwater DP semi-submersible drilling rig that started its operations in April 2011. The rig is capable of drilling in waters depths of up to 7,900 feet and has a drilling depth capacity of up to 30,000 feet. Lone Star is equipped to operate in the pre-salt.

#### **ALPHA STAR**

An ultra-deepwater DP semi-submersible drilling rig that started its operations in July 2011. The drilling rig is capable of drilling in waters depths of up to 9,000 feet and has a drilling depth capacity of up to 30,000 feet. Alpha Star is equipped to operate in the pre-salt.

#### **AMARALINA STAR**

An ultra-deepwater DP drillship. The drillship started its operations in September 2012 and is designed to drill in waters depths of up to 10,000 feet and has a drilling depth capacity of up to 40,000 feet. Amaralina Star is equipped to operate in the pre-salt.

#### **LAGUNA STAR**

An ultra-deepwater DP drillship. It is currently under mobilization and is being designed to drill in water depths of up to 10,000 feet with a drilling depth capacity of up to 40,000 feet. It will be equipped to operate in the pre-salt.

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## **APPENDIX M    PETROSERV FLEET SUMMARY**





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TECHNICAL DUE DILIGENCE REVIEW

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#### **Petroserv Semi-submersible TBN 1**

6<sup>th</sup> generation Semi-submersible GVA 7500 type, built 2009 by Daewoo, Korea, and classified by Lloyds. The Petroserv TBN 1 Semi-submersible can operate at water depths up to 7,874 ft and drill down to approximately 30000ft.

#### **Louisiana**

4<sup>th</sup> generation Semi-submersible Friede & Goldman L-900 Pacesetter type, built 1998 by PMB Bechtel at the Rauma-Repola Offshore OY, Mantyluoto shipyard and classified by Lloyds. The Louisiana Semi-submersible can operate at water depths up to 6,200 ft and drill down to approximately 30,000 ft.

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## **APPENDIX N WORLD DRILLSHIP / SEMI FLEET**

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TECHNICAL DUE DILIGENCE REVIEW

### Drillships

| Operator                | Rig Name              | Design               | Delivery  | Cost (\$mm) |
|-------------------------|-----------------------|----------------------|-----------|-------------|
| Aban Offshore           | Aban Ice              | Converted Tanker     | Apr-75    |             |
| Aban Offshore           | Aban Abraham          | Gusto                | 28-Sep-76 |             |
| Aban Offshore           | Deep Venture          | Gusto                | Jul-81    |             |
| Diamond Offshore        | Ocean Clipper         | Converted Bulker     | Mar-77    |             |
| Dolphin A/S             | Belford Dolphin       | Navis class          | 14-Mar-00 |             |
| Ensco Drilling          | Ensco DS-1            | Gusto                | 14-May-99 |             |
| Ensco Drilling          | Ensco DS-2            | Gusto                | 30-Sep-99 |             |
| Ensco Drilling          | Ensco DS-3            | S10000E              | 28-Feb-10 |             |
| Ensco Drilling          | Ensco DS-4            | S10000E              | 17-Sep-10 | 675         |
| Ensco Drilling          | Ensco DS-5            | S10000E              | 24-Jan-11 | 720         |
| Ensco Drilling          | Ensco DS-6            | S10000E              | 13-Jan-12 | 745         |
| Etesco                  | Etesco Takatsugu J    | S10000E              | 15-Dec-11 | 709         |
| Jasper Drilling         | Jasper Explorer       | Gusto                | 16-Jan-73 |             |
| Mike Mullen             | Peregrine I           | Gusto                | 30-Sep-82 |             |
| Noble Drilling          | Noble Duchess         | Converted Tanker     | Jan-74    |             |
| Noble Drilling          | Noble Discoverer      | Converted Bulker     | May-76    |             |
| Noble Drilling          | Noble Roger Eason     | Converted Bulker     | Jul-63    |             |
| Noble Drilling          | Noble Phoenix         | Gusto                | Jun-79    |             |
| Noble Drilling          | Noble Leo Segerius    | Gusto                | 11-Aug-81 |             |
| Noble Drilling          | Noble Muravlenko      | Gusto                | 30-Jun-82 |             |
| Noble Drilling          | Noble Bully 1         | Gusto PRD12000       | 1-Sep-11  |             |
| Noble Drilling          | Noble Bully 2         | Gusto PRD12000       | 14-Dec-11 |             |
| Noble Drilling          | Noble Globetrotter I  | Huisman Globetrotter | 18-May-11 | 585         |
| Noble Drilling          | Noble Globetrotter II | Huisman Globetrotter | 22-Jul-12 | 550         |
| North Atlantic Drilling | West Navigator        | MST III              | 23-Feb-98 |             |
| Northern Offshore       | Energy Searcher       | Converted Bulker     | 1982      |             |
| Ocean Rig               | Ocean Rig Corcovado   | S10000E              | 3-Jan-11  | 661         |
| Ocean Rig               | Ocean Rig Olympia     | S12000E              | 30-Mar-11 | 661         |
| Ocean Rig               | Ocean Rig Poseidon    | S12000E              | 29-Jul-11 |             |
| Ocean Rig               | Ocean Rig Mykonos     | S10000E              | 30-Sep-11 |             |
| Odebrecht               | Norbe VIII            | Daewoo 10000         | 15-Mar-11 | 690         |
| Odebrecht               | Norbe IX              | Daewoo 10000         | 17-May-11 | 690         |
| Odebrecht               | ODN 1                 | Daewoo 10000         | 23-Apr-12 |             |
| Odebrecht               | ODN 2                 | Daewoo 10000         | 6-Jun-12  |             |
| Odfjell/Metrostar       | Deepsea Metro I       | Gusto P10000         | 22-Jun-11 | 668         |
| Odfjell/Metrostar       | Deepsea Metro II      | Gusto P10000         | 25-Nov-11 | 668         |
| ONGC                    | Sagar Vijay           | Hitachi              | 1-Feb-85  |             |



SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW

|                   |                         |                     |           |     |
|-------------------|-------------------------|---------------------|-----------|-----|
| ONGC              | Sagar Bhushan           | Hitachi             | 28-May-87 |     |
| Pacific Drillship | Pacific Bora            | S10000E             | 13-Oct-10 |     |
| Pacific Drillship | Pacific Scirocco        | S10000E             | 13-Apr-11 |     |
| Pacific Drillship | Pacific Mistral         | S10000E             | 1-Jun-11  | 650 |
| Pacific Drillship | Pacific Santa Ana       | S10000E             | 20-Dec-11 | 650 |
| PetroSaudi        | Petrosaudi Discoverer   | Offshore Discoverer | 20-Dec-76 |     |
| PetroSaudi        | Petrosaudi Saturn       | Global Marine       | 1-Oct-83  |     |
| Petroserv         | Carolina                | Daewoo 10000        | 24-Aug-11 |     |
| Queiroz Galvao    | Amaralina Star          | F & G               | 7-Feb-12  |     |
| Queiroz Galvao    | Laguna Star             | F & G               | 12-Sep-12 |     |
| Saipem            | Saipem 10000            | Samsung             | 10-May-00 |     |
| Saipem            | Saipem 12000            | S12000E             | 25-Apr-10 |     |
| Schahin Drilling  | SC Lancer               | Gusto               | 28-Mar-77 |     |
| Schahin Drilling  | Vitoria 10000           | S10000E             | 9-Jul-10  |     |
| Schahin Drilling  | Cerrado                 | S10000E             | 30-Jul-11 | 682 |
| Schahin Drilling  | Sertao                  | S10000E             | 22-Feb-12 | 709 |
| SeaDrill Ltd      | West Polaris            | S10000E             | 15-Jul-08 |     |
| SeaDrill Ltd      | West Capella            | S10000E             | 29-Dec-08 |     |
| SeaDrill Ltd      | West Gemini             | S10000E             | 29-Jun-10 |     |
| Stena Drilling    | Stena DrillMAX          | Samsung             | 31-Dec-07 |     |
| Stena Drilling    | Stena Carron            | SAMS DMS            | 22-Aug-08 |     |
| Stena Drilling    | Stena Forth             | SAMS DMS            | 13-Aug-09 |     |
| Stena Drilling    | Stena IceMAX            | SAMS DMS Arctic     | 16-Apr-12 |     |
| Transocean Inc.   | Deepwater Navigator     | Offshore Discoverer | Jul-71    |     |
| Transocean Inc.   | GSF Explorer            | Global Marine       | Jul-73    |     |
| Transocean Inc.   | Discoverer Seven Seas   | Offshore Discoverer | 30-Jun-76 |     |
| Transocean Inc.   | Discoverer Enterprise   | Offshore Discoverer | 7-Aug-98  |     |
| Transocean Inc.   | Deepwater Pathfinder    | Conoco/R&B          | 30-Oct-98 |     |
| Transocean Inc.   | Deepwater Expedition    | Gusto               | Jul-96    |     |
| Transocean Inc.   | Deepwater Millennium    | Conoco/R&B          | 3-Apr-99  |     |
| Transocean Inc.   | Deepwater Frontier      | Conoco/R&B          | 2-Mar-99  |     |
| Transocean Inc.   | Discoverer Spirit       | Offshore Discoverer | 6-Oct-99  |     |
| Transocean Inc.   | GSF C. R. Luigs         | Gusto P10000        | 16-Mar-00 |     |
| Transocean Inc.   | GSF Jack Ryan           | Gusto P10000        | 25-Jul-00 |     |
| Transocean Inc.   | Discoverer Deep Seas    | Offshore Discoverer | 1-Jul-01  |     |
| Transocean Inc.   | Dhirubhai Deepwater KG1 | S10000E             | 28-Feb-09 |     |
| Transocean Inc.   | Discoverer Clear Leader | Enhanced Enterprise | 26-Mar-09 |     |
| Transocean Inc.   | Petrobras 10000         | S10000E             | 30-Jul-09 |     |
| Transocean Inc.   | Discoverer Americas     | Enhanced Enterprise | 3-Aug-09  |     |
| Transocean Inc.   | Dhirubhai Deepwater KG2 | S10000E             | 30-Oct-09 |     |
| Transocean Inc.   | Discoverer Inspiration  | Enhanced Enterprise | 31-Oct-09 |     |

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**SETE BRASIL DRILLSHIP PROJECTS  
TECHNICAL DUE DILIGENCE REVIEW**

|                   |                    |                     |           |     |
|-------------------|--------------------|---------------------|-----------|-----|
| Transocean Inc.   | Discoverer Luanda  | Enhanced Enterprise | 17-Mar-10 |     |
| Transocean Inc.   | Discoverer India   | Enhanced Enterprise | 23-Aug-10 |     |
| Transocean Inc.   | Deepwater Champion | Gusto P10000        | 3-Nov-10  |     |
| Vantage Drilling  | Platinum Explorer  | Daewoo 12000        | 17-Nov-10 |     |
| Vantage Drilling  | Titanium Explorer  | Daewoo 12000        | 20-Apr-12 |     |
| Atwood Oceanics   | Atwood Advantage   | Daewoo 12000        | 3Q 2013   | 600 |
| Atwood Oceanics   | Atwood Achiever    | Daewoo 12000        | 2Q 2014   | 600 |
| Atwood Oceanics   | Atwood Admiral     | Daewoo 12000        | 1Q 2015   | 635 |
| Diamond Offshore  | Ocean BlackHawk    | Gusto P10000        | 2Q 2013   | 590 |
| Diamond Offshore  | Ocean BlackHornet  | Gusto P10000        | 4Q 2013   | 590 |
| Diamond Offshore  | Ocean BlackRhino   | Gusto P10000        | 2Q 2014   | 610 |
| Diamond Offshore  | Ocean BlackLion    | Gusto P10000        | 4Q 2014   | 655 |
| Dolphin A/S       | Bolette Dolphin    | Gusto P10000        | 3Q 2013   | 615 |
| Ensco Drilling    | Ensco DS-7         | S10000E             | 2Q 2013   | 600 |
| Ensco Drilling    | Ensco DS-8         | GF 12000            | 3Q 2014   | 645 |
| Ensco Drilling    | Ensco DS-9         | GF 12000            | 4Q 2014   | 645 |
| Maersk Drilling   |                    | S10000E             | 3Q 2013   | 650 |
| Maersk Drilling   |                    | S10000E             | 4Q 2013   | 650 |
| Maersk Drilling   |                    | S10000E             | 2Q 2014   | 650 |
| Maersk Drilling   |                    | S10000E             | 3Q 2014   | 650 |
| Noble Drilling    | Noble Don Taylor   | Gusto P10000        | 2Q 2013   | 605 |
| Noble Drilling    | Noble Bob Douglas  | Gusto P10000        | 4Q 2013   | 605 |
| Noble Drilling    | Noble Sam Croft    | Gusto P10000        | 2Q 2014   | 615 |
| Noble Drilling    |                    | Gusto P10000        | 4Q2014    | 630 |
| Ocean Rig         | Ocean Rig Mylos    | S12000E             | Jul-13    | 600 |
| Ocean Rig         |                    | S12000E             | Oct-13    | 600 |
| Ocean Rig         |                    | S12000E             | Nov-13    | 608 |
| Opus Offshore     |                    | CSSC Tiger          | Jun-14    |     |
| Opus Offshore     |                    | CSSC Tiger          | Dec-14    |     |
| Opus Offshore     |                    | CSSC Tiger          | Aug-14    |     |
| Opus Offshore     |                    | CSSC Tiger          | Feb-15    |     |
| Pacific Drillship | Pacific Khamsin    | S12000E             | Apr-13    | 600 |
| Pacific Drillship | Pacific Sharav     | S12000E             | Sep-13    | 600 |
| Pacific Drillship | Pacific Meltem     | S12000E             | May-14    | 600 |
| Rowan             | Rowan Renaissance  | Gusto P10000        | Late 2013 | 605 |
| Rowan             | Rowan Resolute     | Gusto P10000        | Mid 2014  | 605 |
| Rowan             | Rowan Reliance     | Gusto P10000        | 4Q 2014   | 600 |
| Rowan             |                    | Gusto P10000        | 1Q 2015   | 620 |
| SeaDrill Ltd      | West Auriga        | S10000E             | 1Q 2013   | 600 |
| SeaDrill Ltd      | West Tellus        | S10000E             | 2Q 2013   | 600 |
| SeaDrill Ltd      | West Vela          | S10000E             | 3Q 2013   | 600 |

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TECHNICAL DUE DILIGENCE REVIEW

|                  |                    |              |         |     |
|------------------|--------------------|--------------|---------|-----|
| SeaDrill Ltd     | West Jupiter       | S10000E      | 2Q 2014 | 600 |
| SeaDrill Ltd     | West Neptune       | S10000E      | 3Q 2014 | 600 |
| SeaDrill Ltd     | West Saturn        | S10000E      | 2Q 2014 | 600 |
| SeaDrill Ltd     |                    | S10000E      | 4Q 2014 | 600 |
| Transocean Inc.  | Deepwater Asgard   | Daewoo 12000 | 4Q 2013 | 600 |
| Transocean Inc.  | Deepwater Invictus | Daewoo 12000 | 4Q 2013 | 600 |
| Transocean Inc.  |                    | Daewoo 12000 | 2Q 2015 | 750 |
| Transocean Inc.  |                    | Daewoo 12000 | 4Q 2015 | 750 |
| Transocean Inc.  |                    | Daewoo 12000 | 2Q 2016 | 750 |
| Transocean Inc.  |                    | Daewoo 12000 | 2Q 2016 | 750 |
| Vantage Drilling | Dalian Developer   | MPF 10000    | Dec-12  |     |
| Vantage Drilling | Cobalt Explorer    | Daewoo 12000 | Dec-12  |     |
| Vantage Drilling | Tungsten Explorer  | Daewoo 12000 |         |     |

**Semi-submersibles**

| Operator             | Rig Name         | Design       | Delivery |
|----------------------|------------------|--------------|----------|
| Diamond Offshore     | Ocean Apex       |              | 2Q 2014  |
| Dolphin A/S          |                  | Moss CS-60 E | 2015     |
| North Atlantic       | West Mira        | Moss CS60    | 2014     |
| North Atlantic       | West Rigel       | Moss CS60    | 2014     |
| North Sea Rigs       | North Dragon     | GM 4-D       | 2015     |
| Odebrecht Drilling   | Botinas          | MSC TDS 2000 | 2013     |
| Odfjell Drilling     | Deepsea Aberdeen | GVA 7500N    | 2014     |
| Queiroz Galvao Perf. | Urca             | FELS DSS 38E | 2015     |
| Queiroz Galvao Perf. | Bracuhy          | FELS DSS 38E | 2017     |
| Queiroz Galvao Perf. | Mangaratiba      | FELS DSS 38E | 2018     |
| Sevan Drilling       | Sevan UDW 3      | Sevan 650    | 2013     |
| Sevan Drilling       | Sevan UDW 4      | Sevan 650    | 2014     |
| Songa Offshore       | Songa Endurance  | GVA 4000 NCS | 2014     |
| Songa Offshore       | Songa Equinox    | GVA 4000 NCS | 2014     |
| Songa Offshore       | Songa Enabler    | GVA 4000 NCS | 2015     |
| Songa Offshore       | Songa Encourage  | GVA 4000 NCS | 2015     |
| Ventura              | SSV Caterina     | GVA 7500     | 2012     |
| Ventura              | Portogalo        | FELS DSS 38E | 2016     |
| Ventura              | Frade            | FELS DSS 38E | 2018     |



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## **APPENDIX O KOREAN SHIPYARD DRILLING VESSELS**

